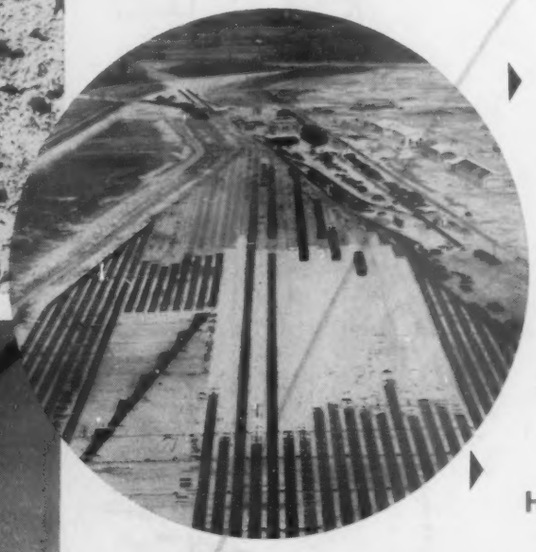
MAY 4, 1953

IC Seminar for Management . . . p. 70

RAILWAY AGE

The Standard Railroad WEEKLY for Almost a Century



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RAILWAY AGE

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Week at a Glance

More Private Transport is the aim of the Eisenhower Administration, according to Robert B. Murray, undersecretary of commerce for transportation. 11

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The "Airslide," a new type of covered hopper car for bulk shipment of dry powdered materials, has been announced by the General American Transportation Corporation. 14

RAILWAY AGE FORUM

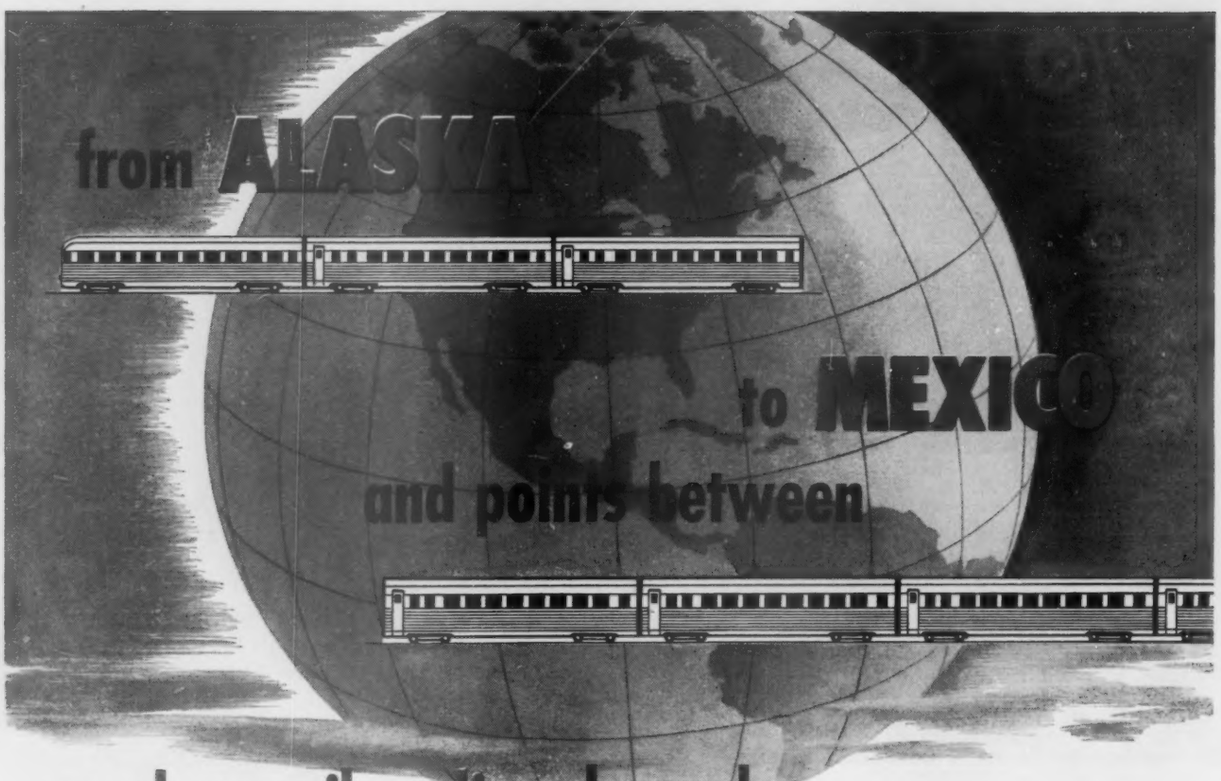
Railroad Safety, already good, would very probably be hurt rather than helped by pending legislation to give the I.C.C. authority over power brakes, communication systems and operating rules. 49

Those Atlantic City Conventions, in June, are likely to be the largest assembly in a long time of railroad executive and supervisory officers. 50

Loss and Damage Can Be Reduced, by improved techniques and constant vigilance. 51

Less Track Space is needed by new B&LE ore cars, because of design refinements which make the cars unusually short. 53

The Causes of Hot Boxes have been extensively investigated by the test department of the Pennsylvania, with some interesting conclusions. 54



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Current Statistics

Operating revenues, two months	
1953	$ 1,675,969,483
1952	1,712,242,248
Operating expenses, two months	
1953	$ 1,282,776,540
1952	1,335,231,969
Taxes, two months	
1953	$ 199,785,353
1952	206,617,952
Net railway operating income, two months	
1953	$ 157,874,871
1952	142,130,419
Net income, estimated, two months	
1953	$ 114,000,000
1952	95,000,000
Average price railroad stocks	
April 28, 1953	64.06
April 29, 1952	59.73
Car loadings revenue freight	
Sixteen weeks, 1953	11,061,792
Sixteen weeks, 1952	11,473,102
Average daily freight car surplus	
April 25, 1953	46,416
April 26, 1952	18,047
Average daily freight car shortage	
April 25, 1953	1,462
April 26, 1952	1,683
Freight cars delivered	
March 1953	6,679
March 1952	8,159
Freight cars on order	
April 1, 1953	68,553
April 1, 1952	115,854
Freight cars held for repairs	
April 1, 1953	94,896
April 1, 1952	94,509

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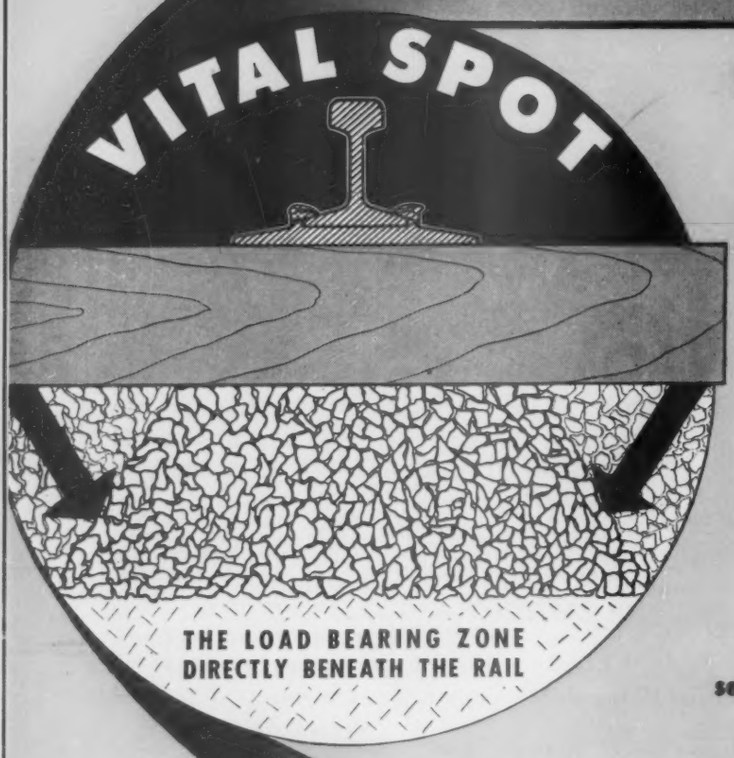
Progress in Preservative Treatment of Timber was reported at the 49th annual meeting of the American Wood Preservers' Association. 83

BRIEFS

Pennsylvania Truckers Ask Help in their "stop the railroads" drive, calling on truck firms in 22 Eastern states to join them in a new organization, the Eastern Highway Transport Conference, planned to oppose railroad efforts to show the public the proper economic place of highway freight service.

At Least 18 of the New Coaches and some of the sleeping cars being built in Switzerland for the National of Mexico are reported to be in revenue service in the

THE PERFECT BUILD-UP



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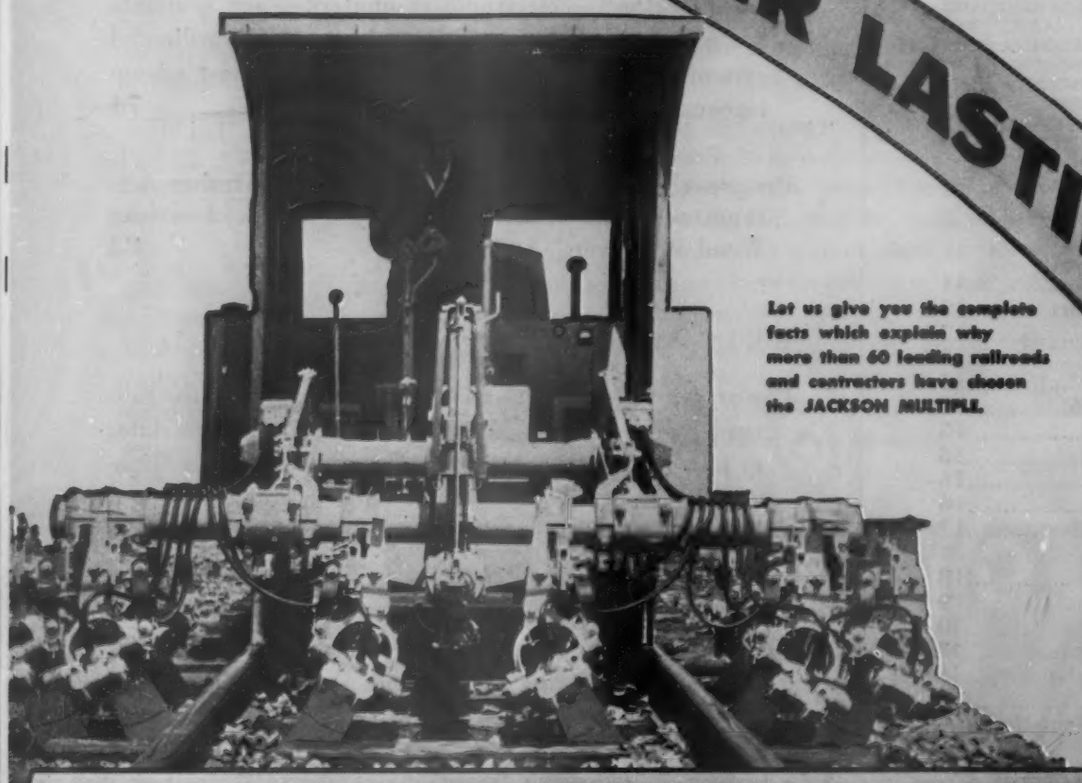

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Week at a Glance CONTINUED

latter country (*Railway Age*, March 24, 1952; June 16, and September 1). Travelers who have used them say they carry, inside, special signs urging passengers to "keep them clean" —an idea which might be worth trying in this country.

Commissioner J. Haden Alldredge will serve another two months as chairman of the I.C.C. His one-year term, slated to end April 30, was extended to June 30. The I.C.C. chairmanship will hereafter correspond with the fiscal year—from July 1 until the following June 30.

Who Wants the Illinois Terminal? Unusual market activity in Illinois Terminal common stock has produced a spate of rumors concerning possible consolidation of that road with another operating in or near Peoria, Ill. Other railroads in the area have told *Railway Age* they know of no such plans, but the rumors and stock activity persist. IT directors have refused an offer of $6,675,000 for the railroad from the Sarjem Corporation, an organization which handles vehicular toll bridges and presumably is interested in IT because of its ownership of the McKinley bridge spanning the Mississippi at St. Louis. Officers of Sarjem are reported to have assured the IT they have not been purchasing its stock on the open market.

The "Time-Lag" Bill, S. 1461, which would permit prompt increases in railroad rates as costs rise, will come up for public hearing May 5 before the Senate Committee on Interstate Commerce.

A Great Drawback to more extensive use of specialty-type box cars for carload freight, is the complete indifference of many draymen toward care and maintenance of the loading devices. That is the candid opinion of J. J. Mahoney, general superintendent of transportation of the Santa Fe, who explained to students in Northwestern University's course in railroad management: "We have just placed a limited number of these cars in service. But the other day I found 15 of them on the rip track at Richmond, Cal. The foreman explained to me that the draymen who unloaded them simply refused to gather up the equipment and put it back in the cars. I think equipment of this sort is too costly to be purchased for mistreatment like that."

"The Private Motorist has for too long paid more than his just share of the tax load," the American Automobile Association said recently. It also said "highway users should pay in proportion to benefits they receive, giving due consideration to added cost of roads required for heavy vehicles."

If Anybody Thinks Pioneering Days of railroading are over, he should have heard NP President Macfarlane tell the Executives' Club of Chicago about the growth of *agricultural* towns along his road. Combined population of Pasco, Kennewick and Richland, Wash., was 6,000 in 1940. At the beginning of 1953, it was more than 62,000—a ten-fold jump. Full development of the Columbia basin will bring further agricultural growth.

Air Lines Have "Reached the End of Their Rope" in attracting new investment capital, according to T.W.A. President Ralph S. Damon. In 1929, he has reportedly said, transport planes cost about $65,000 each; now the figure is between $1 and $2 million; and future jet liners may cost 2½-$4 million. Ground installations costs will be greater, too, he said, adding that "The . . . air line industry will have to begin paying a regular yield to its investors if these vast capital needs are to be satisfied."

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Ike's Aim — More Private Transport

Administration strives for less government operation, according to Under Secretary of Commerce Murray

Since the Administration of President Eisenhower got under way, the aim of the Department of Commerce in the transportation field has been "less government and more private operation."

That's the way Robert B. Murray, Jr., under secretary of commerce for transportation, put it in an address at a transportation-luncheon session held April 28 in Washington, D. C., as part of the annual meeting of the Chamber of Commerce of the United States. Evans A. Nash, chairman of the chamber's Transportation and Communication Department Committee, presided at the session. "Gearing Government to Transport Needs" was the title of Mr. Murray's address.

"Our work," he said, "will be increasingly directed to encouragement and development of an efficient and adequate private-owned and operated transportation system. . . . We favor federal participation only where it is clearly demonstrated that such activity is essentially and fully justified."

In formulation of transport policies and programs, Mr. Murray also said, the Eisenhower Administration will be guided by "such basic principles" as the "need" for:

1. A minimum degree of government participation consistent with requirements of the economy, national security, and fiscal policy.
2. Private ownership of basic facilities.
3. Elimination of government duplication.
4. Proper balance between federal and state responsibilities.
5. Encouragement of private initiative in transport development.
6. Effective and economical administration.

It is his office's purpose to "review and evaluate" the Commerce Department's transport program in keeping with these principles, Mr. Murray asserted. Among other things, such review will consider the extent to which the present policy creates "unfair competitive conditions and complicates the regulatory process"; and the "extent to which charges should be imposed for use of government-provided transportation facilities and services."

Aviation

More specifically, Mr. Murray said that, in the aviation field, the department is embarked on a re-evaluation of the federal-aid airport program. "We intend," he explained, "to ascertain whether or not there is a fundamental need for federal participation in construction of airports . . . and, if so, the nature, extent and location of such needs."

The department's airways program is also being examined, Mr. Murray continued. He went on to say that representatives of the air lines have been asked what functions of the Civil Aeronautics Administration could be absorbed by the air carriers.

Highways and Waterways

Also under review are the federal-aid highway program and the department's activities in the field of water transportation. In the latter connection, Mr. Murray noted the department's recent announcement of its intention to sell the Federal Barge Lines, which are operated by the government owned Inland Waterways Corporation. He also referred to the user-charge study which, as he put it, the department has "under way." The reference was preceded by this statement:

"We recognize that the federal government must, or is best able to, provide certain types of transportation facilities and services, but this does not mean that such assistance should be furnished free to direct beneficiaries."

In other parts of his address, the under secretary reiterated previous declarations that the Commerce Department has no desire to take over "economic regulatory functions" of the Interstate Commerce Commission, Civil Aeronautics Board, or Federal Maritime Board; and that the department does not propose to intervene in deliberations of those agencies, except and to the extent that its interests are "directly" involved.

"However," Mr. Murray added, "if it appears appropriate we shall report to Congress any points of conflict that we may find to exist between regulatory and promotional objectives of a national transportation policy."

Law & Regulation

Shipper Asks RR Price Freedom

Butler Brothers president tells Mid-West Advisory Board "intense transport competition" has penalized small shipper —Advocates "liberalization" rather than more regulation

"I don't mean to infer that higher freight rates haven't been justified in many instances, but it does appear that the small business man has been singled out to bear a disproportionate share of the increases that have become effective over the past few years," Bert R. Prall, president of Butler Brothers, Chicago, told the Mid-West Shippers Advisory Board and the Traffic Club of Chicago during the board's 102nd regular meeting in Chicago April 16.

"Without question," Mr. Prall continued, "competition is the best method for maintaining the best service at lowest cost. But development of intense transportation competition has by no means benefited the small shipper. In fact, it has penalized him. Under a monopolistic transportation system, the burden of cost was placed upon the type of traffic which could best afford it. Under the present so-called competitive system, the value of service theory upon which rates were historically established is no longer applied.

"Current changes in national transportation policy and in regulatory practices and rate structure simply haven't kept pace with changed conditions.

"With the draining away of high-rated, high-revenue-producing traffic, there has been a great cry by spokesmen of American railroads for closer regulation of rates and services of truck lines. This, in turn, has been echoed by common carrier truckers demanding regulation of private carriers. In both instances, the remedy proposed is the wrong one. Instead of calling for regulation of their competition, they should plead for liberalization of all.

"The excuse of monopoly, which once may have justified regulation of

railroads, is no longer a valid one. . . Accordingly, the right to put a price on their service should be restored to railroad management and regulation confined to examining and, if necessary, correcting charges of discrimination against a particular shipper or region."

Perfect shipping received much emphasis during the board's meeting. The board went on record as opposed to bills pending in Congress which would extend powers of the Interstate Commerce Commission to permit issuance of rules and regulations governing railroad operations—including the power to require installation of specific types of equipment appliances.

The board's next meeting will be held at Milwaukee, July 15-16.

Competitive Transport

Trucks Called Safe for Explosives

"Relatively speaking," the hazard is "no greater" than when such commodities are carried by rail, I.C.C. examiner says

Making his proposed report in the so-called explosives case, Examiner B. E. Stillwell has recommended an Interstate Commerce Commission finding that transportation of "dangerous explosives" by motor vehicle, "relatively speaking, provides no greater hazard to the public than transportation of such commodities by rail."

The proposed report, made public by the commission April 24, covers Docket No. MC-200 (Sub-No. 84) and related proceedings which involve applications of Riss & Co. and other motor carriers for authority to transport dangerous explosives, ammunition, and component parts thereof, over various routes in 34 states and the District of Columbia. While the examiner would have the commission make the foregoing finding on the basic issue, he recommended that most of the carrier applications be denied for lack of showings of public convenience and necessity for the proposed services.

This is the case wherein the railroads and various public authorities and interested private organizations made presentations to the effect that dangerous explosives, from a safety standpoint, are not suitable for transportation over highways, and that the applications should be denied on grounds of general public policy. It is that contention that Examiner Stillwell would have the commission reject with these findings:

1. That the dangerous explosives here considered are relatively stable in character and are designed to withstand rugged transportation conditions; that transportation of dangerous explosives over the present highway system by properly qualified motor carriers under the commission's safety regulations is not a particularly dangerous service; that the motor carrier safety record in transportation of dangerous explosives is generally satisfactory; that transportation of dangerous explosives by motor vehicle, relatively speaking, provides no greater hazard to the public than transportation of such commodities by rail; and that dangerous explosives are suitable for motor transportation under the commission's safety regulations, which regulations, as well as the national transportation policy, contemplate movement of these commodities over the highways of the nation.

No "General Policy"

2. That it has not been demonstrated that the commission should establish a general policy which would preclude highway transportation of dangerous explosives by motor vehicle where otherwise required by public convenience and necessity; and that, in the event further restrictions on transportation of dangerous explosives by motor carriers are deemed necessary and desirable by interested persons in order to reduce hazards involved and insure additional safeguards to the public, petitions for appropriate revision of the commission's safety regulations should be filed with the commission for that purpose, or for institution of a general investigation into motor transportation of dangerous explosives generally.

Truckers involved in the proceeding sought the additional rights proposed in their applications in order to participate in shipments made by the Army, Navy and Air Force. The Department of Defense, of which those agencies are units, did not support any particular application; but it took the general position that more motor service was desirable. It left to the commission the task of determining how much more.

When hearings in the case opened in September 1951, there were 60 applications. Thirty-six of them were dismissed at the request of the applicants before the hearing phase was concluded. Thus the proposed report considered 24 applications.

As to only one of them—the Riss application—did the examiner recommend favorable commission action on the explosives proposal. As to six others, he recommended that the applicants be permitted to extend their present service in transportation of general commodities (excluding explosives) to the Air Force's depot at Pauline, Kan. The examiner would have the commission deny the remaining 17 applications.

The authority he would give Riss would authorize transportation of explosives, ammunition, and component parts thereof, between Chicago and the naval ammunition depot at Crane, Ind., on the one hand, and, on the other, the naval ammunition depots at Hingham, Mass., and Earle, N. J. Also, between the Hingham and Earle depots.

A NEW TYPE FISH CONTAINER recently was demonstrated by the Canadian National at the annual meeting in Ottawa of the Fisheries Council of Canada. At left is Fisheries Minister James Sinclair. E. A. Day (right), special CNR representative at Ottawa, is explaining the advantages of the new iceless container. The plaques they hold contain a chemical solution which can maintain uniform temperatures for four days.

The six truckers to which the examiner would grant authority to extend their "general commodities" services to Pauline are: Capitol Truck Lines; Wheelock Bros.; Union Transfer Company; Red Ball Transfer Company; Pacific-Intermountain Express Co.; Mid-States Freight Lines.

Railroads Oppose Trip-Leasing Bill

A.A.R.'s Preston tells House committee that removal of I.C.C. authority over truck-hire arrangements would prevent enforcement of National Transportation Policy

The railroads are opposing proposed legislation which would end the Interstate Commerce Commission's authority to prohibit trip-leasing of motor trucks.

The opposition was expressed at recent hearings which the House committee on interstate and foreign commerce held on the proposal as embodied in a bill, H.R. 3203, that the committee's chairman, Representative Wolverton, Republican of New Jersey, introduced "by request."

The movement to have such legislation enacted got under way after the United States Supreme Court upheld the commission's order prescribing truck-leasing rules, including regulations which would prohibit trip leasing and rental payments of the revenue-splitting type. (*Railway Age*, January 19, page 45.) The rules have not yet become effective.

The railroad industry's opposition presentation was made by Thomas L. Preston, general solicitor of the Association of American Railroads; Carl Helmetag, Jr., assistant general counsel of the Pennsylvania; and Amos M. Mathews, attorney for the Association of Western Railways.

Enactment of the bill, Mr. Preston said, would defeat the intent of Congress to give all forms of transportation an opportunity to compete for traffic under fair and impartial regulation. In addition to ending the commission's power to prescribe the duration of truck leases, the bill would also prohibit the commission from fixing the compensation to be paid for leased trucks.

Mr. Preston told the committee that trip-leasing is really a subterfuge in that it permits, under the guise of a trip lease, the performance of common carrier transportation service by truckers who are not common carriers at all. These truckers, he added, "have obtained no certificate of public convenience and necessity and are subject to no responsibility for the safety of their operation."

The A.A.R. general solicitor also asserted that the 30-day lease requirement embodied in the commission's rules does not conflict with or tend to nullify the exemption from regulation of the transportation of agricultural products by motor carriers. On the other hand, Mr. Preston continued, the requirement would tend to prevent practical extension of the agricultural exemption to non-exempt traffic.

Trip-leasing's "cardinal vice," as Mr. Preston put it, is that it opens the door to rebating.

Other opposition presentations included those of railroad labor organizations and the Railway Business Association. The I.C.C. was scheduled to make its presentation later.

Rates & Fares

New Ex Parte 175 Hearing Set

I.C.C. schedules hearing for June 15 on railroad plea to make "175" increases permanent

The railroad request that Ex Parte 175 rate increases be made permanent received a slow order last week when the Interstate Commerce Commission announced it would hold a hearing, beginning June 15.

Rail carriers had asked the commission to eliminate the existing expiration date applicable to the "175" increases. The date is February 28, 1954, and the roads urged the I.C.C. to remove it without hearing. They asked also that the commission remove its requirement that these increases be published as surcharges (*Railway Age*, April 6, page 16).

The June 15 hearing, the commission said, will be for the purpose of "such cross-examination as may be requested," and to stipulate documents into the record. Meanwhile, all parties have until May 15 to file testimony and exhibits, with rebuttal testimony due June 2. The commission said that oral argument would follow the hearing.

"Testimony to be received must be confined solely to changes in conditions, if any, since February 29, 1952, and oral argument will be addressed to the questions raised by the (railroad) petition, namely, whether the prayer of the petition should be granted in whole or in part, or the present expiration date extended for a limited period . . . ," the commission said.

Several groups that participated in earlier phases of Ex Parte 175 have already said they will oppose the pending railroad request. These groups include the Department of Agriculture, General Services Administration, National Coal Association, Western Growers Association and the Southern Traffic League.

The Lincoln Electric Company of Cleveland, Ohio, has filed a statement in support of the railroads. Lincoln said it "specifically concurs" with carrier views on wage costs, declining revenues, equipment expenditures and low rates of return.

Education

A. U. Plans Sixth Foreign Transportation Institute

The Sixth Foreign Transportation Institute of the American University, Washington, D.C., will be held from May 12 through May 29.

The director will be Dr. L. M. Homberger, professor of transportation at the university. Lectures will include discussions of "Railroad Foreign Freight Traffic," by J. B. Jerome, foreign freight traffic manager, New York Central; and of "Railroad Facilities at Ports," by G. C. Randall, who retired April 1 as manager of port traffic, Car Service Division, Association of American Railroads.

Escalator Cut Generally Effective Apr. 1—Correction

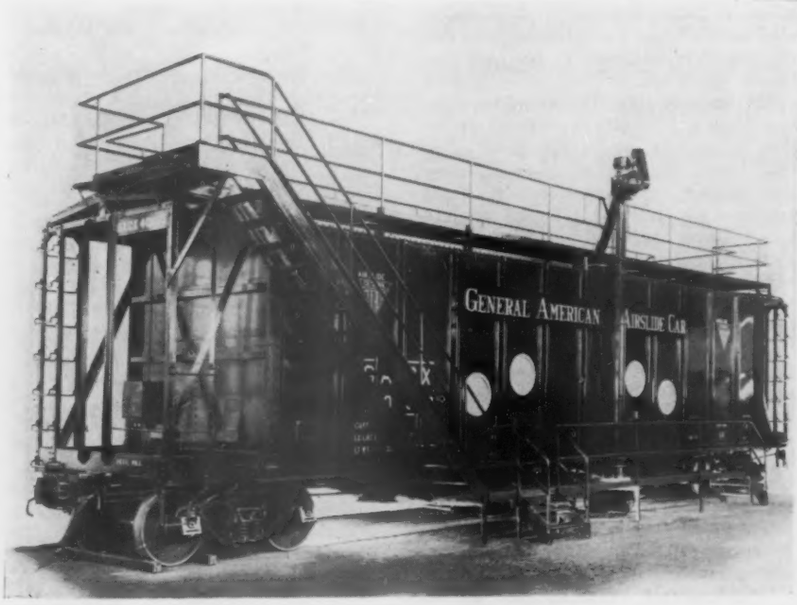
The item on the escalator-clause wage cut, which appeared in *Railway Age* of April 13, page 18, was incorrect in saying that, because the Bureau of Labor Statistics' index was issued a few days late, the three-cents-per-hour reduction would not be made effective as of April 1.

Only a few roads, which pay their employees weekly, failed to get full benefit of the cut, which applied to the first pay checks issued after the index was published. The index was published April 6, so the weekly payers failed to get the cut applied for the month's first few days.

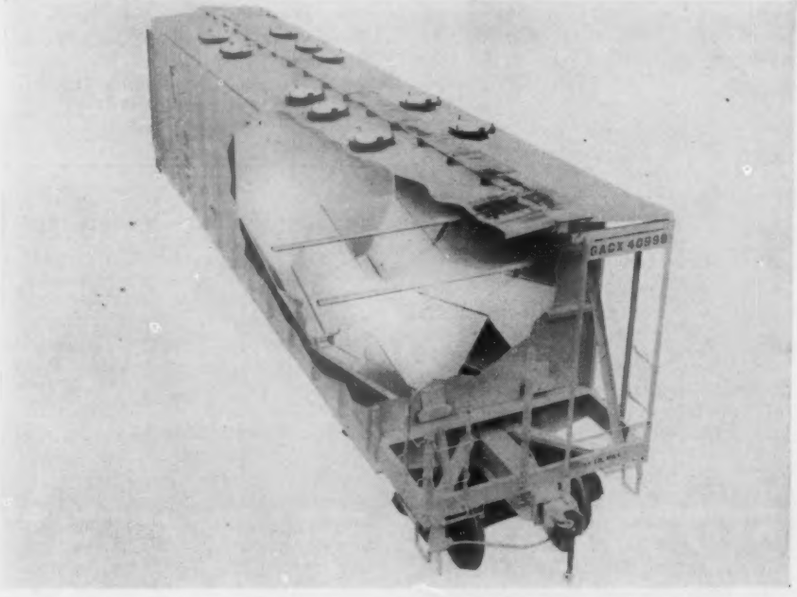
"Airslide" Keeps Heavy Loads Low

General American covered hopper car employs air to fluidize granular lading for unloading

The "Airslide" car—a new type of covered hopper car which makes practical and economical bulk shipment of a wide range of dry powdered materials, such as feed stuffs, chemicals, starches, etc—was announced April 27 by William J. Stebler, executive vice-president of General American Transportation Corporation. Fully equipped and operating, the car was exhibited at Grand Central station, Chicago, April 28, 29 and 30.



THE GENERAL AMERICAN Airslide covered hopper car as it was exhibited at Chicago April 28, 29 and 30.



TWO LONGITUDINAL HOPPERS at each end of the car have 60-deg. slope sheets. Lading is fluidized by air introduced through fabric at the bottom.

The car can be built in sizes of 2,000, 2,600 and 3,600 cu. ft. to cover the entire range of powdered commodities of varying densities. The 2,600-cu. ft. car is expected to offer an advance in economical transportation of a large variety of commodities having bulk densities in the neighborhood of 40 lb. per cu. ft. This is said to be the first time it has been possible to "tailor" a covered hopper car to a wide range of lading requirements, within the A.A.R. limitation of 84 in. for the height of the center of gravity.

The new car was designed in collaboration with the Fuller Company, Catasauqua, Pa., utilizing the Fuller Airslide. The essential part of the Airslide is a fabric of special design stretched over a U-shaped shallow steel channel. The channel below the fabric forms a plenum chamber into which air is introduced at a pressure of approximately 1 lb. per sq. in. and in varying quantities, depending upon the material to be transported. The Airslide, which forms the bottoms of parallel hoppers between longitudinal slope sheets in each end of the car, slopes toward the center of each half of the car. As air is forced through the fabric it slowly permeates the commodity above the fabric, aerating and fluidizing the lading and causing it to flow like water to the unloading point.

Loading Done by Gravity

As indicated by the unit on exhibit, loading of the Airslide car is done by gravity through roof hatches. Lading may be moved from the car either by gravity or pneumatics into any conventional conveying system. The only essential piece of equipment the shipper requires is a small, low-pressure blower, capable of delivering 200 cu. ft. or more of air per minute, said to cost approximately $500 to $600.

To insure a minimum of product retention in the car after completion of each unloading, the Airslide car design embodies all-welded construction and 60-deg. slope sheets. Op-

CAR SURPLUSES, SHORTAGES

Average daily freight car surpluses and shortages for the week ended April 25 were announced by the Association of American Railroads on April 30 as follows:

	Surplus	Shortage
Plain Box	7,346	486
Auto Box	121	43
Total Box	7,467	529
Gondola	2,915	148
Hopper	24,418	291
Covered Hopper	28	14
Stock	3,929	0
Flat	1	480
Refrigerator	7,260	0
Other	398	0
Total	46,416	1,462

Principal Dimensions of the General American Transportation Corporation "Airslide" Covered Hopper Car

	2,000 cu. ft.	2,600 cu. ft.	3,600 cu. ft.
A.A.R. class	LO type	LO type	LO type
Truck capacity, tons	70	50	50
Light weight, lb. (est.)	53,500	54,700	62,500
Load limit, lb. (est.)	156,500	114,300	106,500
Length over strikers, ft.-in.	35-3	39-6	50-9
Overall width, ft.-in.	10-7	10-7	10-7
Overall height, ft.-in.	12-2	14-3	14-1
Number of unloading outlets	4	4	4

tionally, a non-toxic wax lining, possessing good corrosion resistant properties, can provide the car interior with a very smooth surface. For several years this wax coating has been used successfully in General American's Trans-Flo car.

Car Service Order

I.C.C. Service Order No. 873 has been modified by Amendment No. 5, which set back the expiration date from April 15 to June 30. The order makes Richard H. Lambertson the commission agent with authority to control movements of tank cars.

Figures of the Week

Freight Car Loadings

Loadings of revenue freight in the week ended April 25 totaled 779,804 cars, the Association of American Railroads announced on April 30. This was an increase of 28,176 cars, or 3.7 per cent, compared with the previous week; an increase of 315 cars, or 0.04 per cent, compared with the corresponding week last year; and a decrease of 44,858 cars, or 5.4 per cent, compared with the equivalent 1951 week.

Loadings of revenue freight for the week ended April 18 totaled 751,628 cars; the summary for that week, compiled by the Car Service Division, A. A. R., follows:

REVENUE FREIGHT CAR LOADINGS
For the week ended Saturday, April 18

District	1953	1952	1951
Eastern	129,896	124,086	142,937
Allegheny	154,807	149,424	168,130
Pocahontas	54,072	55,924	62,860
Southern	131,689	133,339	134,050
Northwestern	107,648	103,611	120,790
Central Western	113,168	110,635	120,766
Southwestern	60,348	58,050	60,489
Total Western Districts	281,164	272,296	302,045
Total All Roads	751,628	735,069	810,022
Commodities:			
Grain and grain products	42,732	40,208	50,295
Livestock	8,506	8,841	8,333
Coal	118,880	128,745	145,193
Coke	13,718	13,794	14,963
Forest Products	44,265	44,084	48,241
Ore	65,553	61,589	67,304
Merchandise l.c.l.	69,659	71,756	79,868
Miscellaneous	388,315	366,052	395,625
April 18	751,628	735,069	810,022
April 11	721,139	690,752	777,989
April 4	704,517	706,889	739,523
March 28	715,337	725,487	755,435
March 21	701,142	720,009	748,878
Cumulative total 16 weeks	11,061,792	11,473,102	11,821,492.

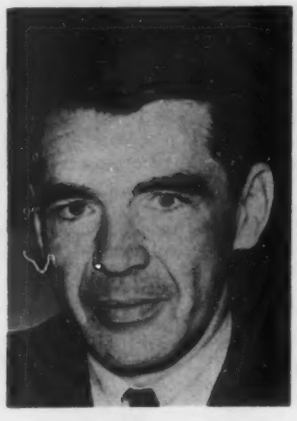
In Canada.—Carloadings for the seven-day period ended April 14 totaled 73,211 cars, compared with 62,795 cars for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
April 14, 1953	73,211	30,903
April 14, 1952	65,011	31,260
Cumulative Totals		
April 14, 1953	1,052,425	468,945
April 14, 1952	1,114,695	525,500

People in the News

Jervis Langdon to Head Southeastern RR Group

A new organization, the Association of Southeastern Railroads, has been created to replace the Southeastern Presidents' Conference, Harry A. DeButts, president of the Southern and chairman of the former conference, has announced. Jervis Langdon, Jr., of Washington, D. C., who has represented southeastern railroads for the past five years as special counsel in the north-south divisions case, and in other litigation before the Interstate Commerce Commission, heads the new organization as full-time chairman.



Jervis Langdon, Jr.

Like its predecessor, the new association, with headquarters in the nation's capital, will handle matters in which southeastern railroads have a common interest. Member roads will be all Class I railroads operating in the area generally south of the Potomac and east of the Mississippi rivers.

Mr. Langdon, before World War II, was successively assistant general attorney, general attorney and assistant vice-president in charge of traffic for the Chesapeake & Ohio. During the war he served with the U. S. Army Air Force, including 18 months as chief of staff of the Southwest Pacific Wing of the Air Transport Command under General MacArthur.

Traffic

Tariff Research Group Issues More Bulletins

The Railroads' Tariff Research Group has distributed seven new tariff improvement bulletins to publishing agents and tariff issuing officers of individual railroads. They are Bulletins Nos. 32 to 38, inclusive.

Specifications set out in the bulletins were approved at a March 27 meeting of the Railroads' Administrative Committee and the Cooperating Committee of the N.I.T. League. The committees met at San Francisco, Cal.

Bulletin No. 32 sets definite patterns for the sectionalizing of rate tariffs. In "class rate" tariffs the portion used for the statement of rate basis numbers will be designated as Section 1, and the tables or scales of domestic class rates will be designated as Section 2.

In rate tariffs of "other kinds" only the rate matter may be divided into numbered sections, and then only when the rate matter "can more simply and understandably be stated" if separated into formal subdivisions.

When Section 2 of the "class rate" tariffs is followed by separate tables of rates over differential routes or rates to or from ports applicable on water-borne traffic, these separate tables will be designed as "Sections," numbered in sequence. None of the matter which precedes the statement of rate basis numbers or follows the rate scales or tables may be designated as "Sections."

Tariffs in Numbered Sections

Bulletin No. 33 relates to bound tariffs arranged in a sequence of numbered sections. It is designed to facilitate the use of such tariffs by placing distinctive solid black borders on the right hand margins of the leading title or divider pages separating one numbered section from the adjacent one. The same border will be placed on the page that separates the routing portion of the tariff from preceding matter.

Bulletin No. 34 relates to special supplements issued in connection with suspension, postponements, vacations of suspension, and cancellations. These are of interest to a limited number of tariff users. The bulletin directs that the nature of each supplement of this kind be significantly indicated on the right hand margin by a method known in the tariff making trade as "Crosshatching."

Bulletin No. 35 will standardize the method of showing effective dates and reissue legends in supplements to tariffs. Individual tariff items subject to the effective date shown on title pages will not repeat the effective date. Reissued matter will be denoted by the standard reference mark prescribed in the tariff circular of the Interstate Commerce Commission.

Bulletin No. 36 directs that refer-

ences to underlying rate committee publication authorities or files shall be significantly separated from substantive matter. Only the minimum reference will be shown and included within parenthesis; and the reference will be shown with initial publication and will be dropped with the earliest feasible reissue.

Bulletin No. 37 reflects the overwhelming preference of tariff users for the bound or supplement type of tariff over the loose-leaf type. The bulletin permits present loose-leaf tariffs to be continued, but prohibits the issuance of any new tariffs of this type.

Bulletin No. 38 prohibits the use in tariffs of the open-end phrase "except as otherwise provided" and its variations. Tariff makers henceforth must append to the phrase a minute description of the location of the "otherwise" provisions. The bulletin requires correction of existing tariffs as they are reissued.

Organizations

Next monthly dinner meeting of the **Mississippi Valley Maintenance of Way Club** will be held on May 11, at the Hotel De Soto, St. Louis. G. M. Magee, director of engineering research, Association of American Railroads, will speak on "Research for Longer Tie Life." Election and installation of officers also will be held.

The annual meeting of the **Association of Interstate Commerce Commission Practitioners** will be held May 13 and 14 at the Hotel Saint Francis, San Francisco. Among participants in a forum on Transportation Policy will be Jonathan Gibson, vice-president and General Counsel, Atchison, Topeka & Santa Fe, Chicago. Honorable Anthony F. Arpaia, Interstate Commerce Commissioner, will be guest speaker at a group luncheon on the 13th.

The **Eastern Car Foreman's Association** will hold its next meeting in Room 502, Engineering Societies building, 29 West 39th street, New York, May 8, at 7:45 p.m. S. L. Williams, eastern sales manager, Westinghouse Air Brake Company, New York, will speak on "The Air Brake's Contribution to Railroad Operation."

Supply Trade

Westinghouse Air Brake to Buy Part of LeTourneau

The Westinghouse Air Brake Company has agreed to purchase the earth-moving, tractor and related business of R. G. LeTourneau, Inc., as well as LeTourneau's international sales and distribution organization and its Peoria, Ill., and Tocca, Ga., plants. The LeTourneau company will retain and continue to operate its Vicksburg, Miss., and Longview, Tex., plants and to manufacture special products for the United States government, land clearing equipment, cranes and other products not related to earth-moving.

Mr. LeTourneau will continue his development and research work in the earth-moving equipment field for Westinghouse. It is contemplated that a new subsidiary, to be called LeTourneau-Westinghouse Company, will be organized by Air Brake to take over the earth-moving operations.

The **Pittsburgh Corning Corporation** will move its general offices from 307 Fourth avenue, Pittsburgh, to One Gateway Center, Pittsburgh 22. Executive, sales and accounting divisions will be at the new address.

George P. Page, who has been appointed southern sales manager for the Taylor-Wharton Iron & Steel Co. With headquarters at the Weir-Kilby division plant, Birmingham, Ala., Mr. Page will handle sale of all railroad trackwork and forged steel cylinder products in the southern market. He formerly was principal assistant engineer in the engineering and maintenance of way department of the Norfolk Southern.

BEER STORAGE AND SETTLING TANKS, part of a recent shipment of 52 "high and wide" flatcar loads, passing through the Pennsylvania's freight yard at Morrisville, Pa., en route from manufacturer's plant at Milwaukee for installation in a Newark, N. J. brewery. Largest of the glass-lined tanks measures 11 ft. 8 in. in diameter and weighs 19½ tons.

Walter S. Hasselwander, who has been appointed sales engineer of the General Railway Signal Company, at New York. Mr. Hasselwander joined the company in 1923 and worked successively in the factory, commercial and construction departments until his recent appointment.

E. W. McClellan has been appointed midwest regional manager for the **Homelite Corporation,** with headquarters at its newly established office at 120½ South Grove avenue, Elgin, Ill. Mr. McClellan will be in charge of sales and service activities of district offices in Detroit, Cleveland, Cincinnati, Indianapolis, Melrose Park, Ill., Kansas City and St. Paul, as well as branch offices in Toledo.

E. W. McClellan

Grand Rapids, Milwaukee, St. Louis and Omaha. The company also has announced the following changes in branch and district managers: **Francis Darrow,** formerly assistant district manager at Buffalo, appointed manager, Buffalo district office, to succeed Mr. McClellan; **T. Skroch,** formerly manager, Grand Rapids branch office, appointed manager, Indianapolis district office, and **Harold E. Wiersum** appointed manager, branch office at Grand Rapids.

The **Dearborn Chemical Company** has appointed **E. R. Glover** as technical director of the railroad department. Mr. Glover joined Dearborn in 1939 as a railroad department service engineer on the Louisville & Nashville. He was assigned to field technical service in November 1952.

Charles E. Balz has been appointed sales manager of the **Burgess Battery Company,** United States Battery division. He has been assistant sales manager for the past two years, and, for the previous 10 years, advertising and promotion manager.

Equipment & Supplies

Domestic Equipment Orders Reported in April

Domestic orders for 316 diesel units, 2,490 freight-train cars and eight passenger-train cars were reported by individual purchaser in *Railway Age* in April. Estimated cost of the diesel units is $51,800,00; of the freight-train cars, $21,200,000; and of the passenger-train cars, $1,623,094. An accompanying table lists the orders in detail.

During the first four months of 1953, *Railway Age* has reported domestic orders by individual purchaser for 835 diesel units costing an estimated $132,364,000; 9,359 freight-train cars costing an estimated $67,845,000; and 103 passenger-train cars costing an estimated $16,773,094.

DOMESTIC EQUIPMENT ORDERS REPORTED IN APRIL

LOCOMOTIVES

Purchaser	No.	Type	Issue Reported	Builder
DT&I	2	1,500-hp. Gen. Purpose	April 6	Electro-Motive
NYC	80	1,500-hp. Rd.-Switching	April 20	Electro-Motive
	34	2,250-hp. Passenger	April 20	Electro-Motive
	35*	1,000-hp. Switching	April 20	American-G.E.
	15**	1,600-hp. Rd.-Switching	April 20	American-G.E.
SP	12	2,250-hp. Passenger	April 6	
	60	1,500-hp. Freight	April 6	
	19	1,200-hp. Switching	April 6	American-G.E.
	19	1,600-hp. Branch Line	April 6	Baldwin-Lima-Hamilton
	27	1,500-hp. Branch Line	April 6	Electro-Motive
	3	1,200-hp. Branch Line	April 6	Fairbanks, Morse
	10	800-hp. Branch Line	April 6	

FREIGHT CARS

C&EI	200	55-ton Gondola	April 20	R.R. Shops
CI&L	30	70-ton Hopper	April 20	Pullman-Standard
GM&O	300	95-ton Ore	April 20	Pullman-Standard
IT	10	Caboose	April 20	St. Louis Car
L&N	250	95-ton Ore	April 20	Pullman-Standard
StL-SF	200	Ore	April 27	Pullman-Standard
	300	70-ton Gondola	April 27	Pullman-Standard
	300	55-ton Hopper	April 27	Pullman-Standard
	100	Flat	April 27	Amer. Car & Fdy.
Southern	250	95-ton Ore	April 27	Pullman-Standard
T&P	250	50-ton Box	April 13	R.R. Shops
Wabash	200	50-ton Box	April 20	Amer. Car & Fdy.
	100	50-ton Gondola	April 20	R.R. Shops

PASSENGER CARS

NP	2	Parlor Lounge	April 20	Pullman-Standard
	2	Deluxe coach	April 20	Pullman-Standard
	4	Sleeping	April 20	Pullman-Standard

*For the Pittsburgh & Lake Erie.
**Including five for the P&LE.

Financial

NP Expands Dealings With Oil Operators

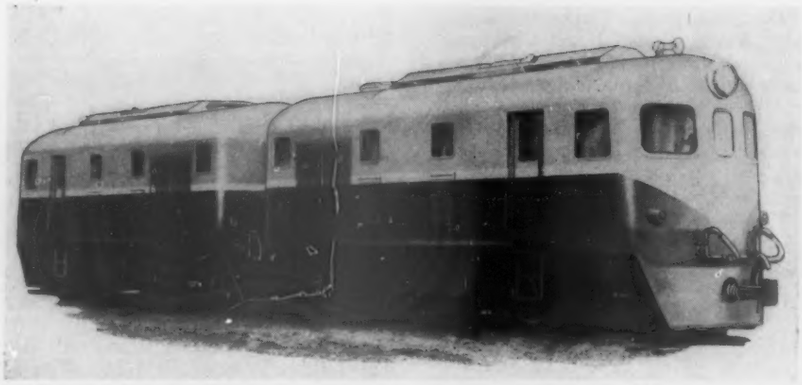
A number of new deals with oil operators for exploration and development of Northern Pacific lands and mineral rights in Montana and North Dakota have been announced by LeRoy H. Hines, the NP's vice-president in charge of oil development.

"Most of the deals involve lands in the Williston basin," said Mr. Hines, "and all of them involve commitments to drill wells either on or adjacent to NP lands. Some are straight leases on a royalty basis. Others involve royalty and carried working interests. And in still others, the company receives a royalty and a working interest participation in blocks of NP and other acreage, and is required to pay part of the exploration and development costs."

This variety of arrangements, he said, indicated the road's general policy in these dealings is flexible and contingent on circumstances in each locale.

Missouri-Kansas-Texas. — *Recapitalization.*— D. V. Fraser, president, has applied to the I.C.C. for an indefinite postponement of proceedings pending on the M-K-T's application and plan for modification of its capital structure. The road's board of directors believes, Mr. Fraser said, that opposition to the plan from certain preferred and common stockholders "indicates the desirability of this action, which will permit of further study with the object of reconciling diverse viewpoints, and, before the hearing is resumed, determining whether differences can be composed either by amendments to the present plan or formulation of a new plan."

Mr. Fraser also has sent Katy stockholders a letter urging reelection of seven incumbent directors at the May 8 annual meeting. In the letter Mr. Fraser discussed "the significance of the activities of certain stockholder groups who are soliciting . . . proxies in opposition to the management's nominees for directors." The proxy material, he said, indicates that the complaint of the groups is with the proposed recapitalization plan. "We have urged all groups to present their complaints or alternative suggestions to the commission," Mr. Fraser continued. "Despite these facts, these . . . groups representing conflicting interests seek election of directors to argue their case in the board room of your company. Management sincerely believes that the composition of your board of directors is of too grave importance . . . to logically permit this question of a recapitalization plan to play a part in the selection of directors."



TWO UNITS of 30 meter-gage diesel-electrics being built by the Davenport Besler Corporation, Davenport, Iowa, for use in passenger, freight and switching service on the Royal State Railways of Thailand. Each unit is of the 0-4-4-0 double-truck type and weighs 50 tons. The engine is a Caterpillar Model D-397 supercharged V-type, with 12 cylinders of 5¾ in. bore by 8 in. stroke, rated at 500 gross hp. at 1,200 r.p.m. They can be operated in pairs. Locomotive brakes are straight-air.

Missouri-Kansas-Texas.—*New Director.*—J. T. Mahaney, executive vice-president, has been elected to this road's board of directors, as well as to boards of various Katy subsidiaries.

Montour.—*Trackage Rights.*—Division 4 of the I.C.C. has approved a modification of the agreement under which this road uses a 2.9-mile segment of the Pittsburgh & West Virginia between Salida, Pa., and Mifflin Junction. The modification is a change in the method of determining rental charges, and the result will be a "slightly higher" rental—$1.20 for each loaded car and 60 cents for each empty car moved by Montour over the segment.

Pennsylvania.—*Acquisition.*—This road has applied to the I.C.C. for authority to acquire control of the United New Jersey Railroad and Canal Company. United has been operated as part of the PRR system since 1871, and the PRR owns 49.87 per cent of United's outstanding stock. The road proposes to acquire additional shares from time to time when funds are available and the price right. United trackage consists of approximately 131.5 miles of main line and 33.2 miles of branch lines in the state of New Jersey.

Securities

Alleghany Corporation. — *New Preferred Stock.*—Success of the proposed offer to exchange new $4 prior preferred convertible stock for a minimum of 15,000 prior preferred convertible shares now outstanding (*Railway Age*, April 13, page 23), together with proposed redemption of any unexchanged prior preferred shares, would eliminate arrears on the present prior preferred and put the corporation in position to pay dividends on its series A preferred, according to the proxy statement mailed to Alleghany shareholders for the annual meeting in Baltimore on May 6. It is expected also that ultimately the proposed exchange would bring Alleghany closer to resumption of common stock dividends.

Missouri Pacific.—*Reorganization.*—The Alleghany Corporation, holder of a large block of MP common stock, has filed with the I.C.C. a proposed plan of reorganization for the road. The plan was filed pursuant to a commission decision of last November. At that time the I.C.C. decided to take another look at the plan it approved in 1949. The plan, then pending in the courts, was recalled for reconsideration and possible revision (*Railway Age*, November 24, 1952, page 56).

The plan now proposed by Alleghany would become effective as of January 1, 1953, and would provide—capitalization for the MP system of $776 million, exclusive of equipment obligations. This capitalization compares with $612 million approved by the I.C.C. in the 1949 plan. The Alleghany plan contemplates annual charges of approximately $33 million, including dividends on the preferred stock. The I.C.C. plan had annual charges totaling $28.5 million.

Alleghany would have the reorganized MP system issue $312,913,492 of first mortgage bonds; $411,500 of Plaza-Olive Building first mortgage bonds; $240,188,602 of MP general mortgage income bonds; $71,608,770 of 5 per cent first preferred stock, par $100; $70,190,100 of 5 per cent convertible second preferred stock, par $100; and $81,314,300 of common stock. This plan would restore the old MP common stock to full value, while the 1949 plan of the I.C.C. would have wiped out the issue entirely.

Still pending in the U. S. District Court at St. Louis is a petition seeking the court's permission for the debtor corporation to file a Mahaffie-Act stock adjustment plan with the I.C.C. This plan would apply to the parent MP company only, and would provide capitalization of $518.5 million (*Railway Age*, February 9, page 90).

Applications

CHICAGO, BURLINGTON & QUINCY.—To assume liability for $7,050,000 of equipment trust certificates to finance in part 33 diesel units and 130 refrigerator cars costing an estimated $8,825,000.

	Description and Builder	Estimated Unit Cost
8	2,250-hp. units (Electro-Motive Division, General Motors Corporation)	$239,000
25	1,500-hp. units (Electro-Motive)	210,000
30	Mechanical refrigerator cars (Fruit Growers Express Company)	20,000
100	Refrigerator cars (F.G.E.)	10,300

The certificates, dated May 1, would mature in 30 semiannual installments of $235,000 each, beginning November 1, 1953. They would be sold by competitive bidding, with interest rate to be set by such bids.

ST. LOUIS-SAN FRANCISCO.—To assume liability for $5,175,000 of series L equipment trust certificates to finance in part five diesel units and 900 freight cars costing an estimated $6,475,002.

	Description and Builder	Estimated Unit Cost
5	1,500-hp. booster freight units (Electro-Motive Division, General Motors Corporation)	$149,012
500	Open-top hopper cars (Pullman-Standard Car Manufacturing Company)	5,667
300	Flat-bottom gondola cars (Pullman-Standard)	6,995
100	Woodrack cars (Company shops)	7,980

The certificates, dated June 1, would mature in 15 annual installments of $345,000 each, beginning June 1, 1954. They would be sold by competitive bidding, with interest rate set by such bids.

Authorizations

DENVER & RIO GRANDE WESTERN.—To assume liability for $3,300,000 of Series S equipment trust certificates to finance in part five diesel locomotives and 475 gondola cars costing an estimated $4,404,955. These certificates are part of a $9,900,000 issue, the remainder of which will be issued in two installments later this year to help finance 1,225 additional gondola cars (*Railway Age*, March 23, page 127). The certificates, dated May 1, will mature in 30 semiannual installments of $110,000 each, beginning November 1, 1953. Division 4 approved sale of the certificates for 99.157 with interest at 3⅛ per cent—the bid of Salomon Bros. & Hutzler and three associates—which will make the average annual cost of proceeds to the road approximately 3.26 per cent. The certificates were reoffered to the public at prices yielding from 2.35 to 3.3 per cent, according to maturity.

LAKE TERMINAL.—To issue a promissory note for $2,167,200 to the United States Steel Corporation in replacement of three existing notes totaling that amount (*Railway Age*, March 30, page 27). The new note, dated January 1, will bear interest at 3¼ per cent.

Dividends Declared

ATLANTIC COAST LINE.—$1.25, quarterly, payable June 12 to holders of record May 15.

BANGOR & AROOSTOOK.—5% preferred, $1.25, quarterly, payable July 1 to holders of record June 5.

INTERNATIONAL OF CENTRAL AMERICA.—5% preferred, $1.25, accumulated, payable May 15 to holders of record May 5.

ST. LOUIS-SAN FRANCISCO.—62½¢, payable June 15 to holders of record June 1.

Security Price Averages

	Apr. 28	Prev. Week	Last Year
Average price of 20 representative railway stocks	64.06	64.63	59.73
Average price of 20 representative railway bonds	91.81	92.92	93.43

New Facilities

Bessemer & Lake Erie.—The Penetryn Company, Cleveland, has been awarded a contract to rebuild a stone box culvert at East Oakmont, Pa., at an estimated cost of $25,000. Construction of a concrete retaining wall at East Oakmont, at a probable cost of $100,000, has been authorized.

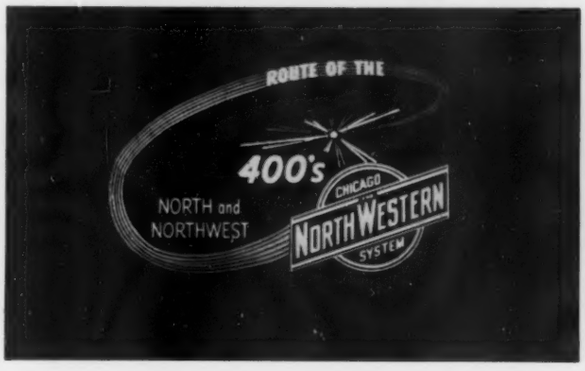
Canadian Pacific.—Approximately $29,000,000 has been earmarked for improvements in British Columbia in 1953. Of the total, $17,000,000 will be spent for new diesel units and construction of diesel-servicing facilities. Other projects include construction of a 7,000-ton specially designed rail-car ferry for service between Vancouver and Nanaimo; preliminary work on reconstructing pier D at Vancouver; and new rail and ship terminal facilities at Nanaimo and Vancouver.

Chesapeake & Ohio.—Contracts have been awarded, at indicated probable costs, to the McNamara Construction Company, Toronto, Ont., for a slip dock at Sarnia, Ont. ($228,000); the Canadian Bridge Company, Walkerville, Ont., for an apron for the slip dock at Sarnia ($190,000); the W. J. Storen Company, Detroit, for repairs to a slip dock at Port Huron, Mich. ($115,000); and C. L. Lewis, Lynchburg, Va., for a cinder block car riders' building at Clifton Forge, Va. ($14,000—total cost of replacing frame building with cinder block car riders' building probably will be $21,600).

These projects have been authorized, at indicated probable costs: Modernize interlocking at Catlettsburg, Ky. ($308,900); alter freighthouse at Chicago to accommodate l.c.l. freight for Pere Marquette and Chesapeake districts ($57,428); construct 20-car cleanout track at Fulton, Va. ($32,500); construct siding and relocate station facilities at Afton, Va. ($32,200); install at Waverly, Mich., c.t.c. machine now in service at New Buffalo ($31,900); additional air conditioning standby facilities at Clifton Forge ($31,150); install car washing facilities at Russell, Ky. ($29,600); construct 2,143 ft. of track to serve the Dow Corning Corporation at Dean, Mich. ($28,459); and construct grade crossing and install flasher light signals and gates at Charleston, W.Va. ($25,000).

Missouri Pacific.—This road has applied to the I.C.C. for authority to relocate a segment of main line between Alexandria, La., and Lake Charles. The proposed change is to make way for enlargement of the Lake Charles Air Force Base. The MP would abandon 3.5 miles of line, a portion of which would be retained as yard tracks. The road would construct a new 3.8-mile segment in replacement.

Union Pacific.—Work has begun on the $4-million project to expand yard facilities at Kansas City, Kan., plans for which were mentioned briefly in this column December 19, 1952. The project includes construction of an entirely new inbound freight yard and conversion of the present yard for outbound business. In all, 42 miles of new tracks will be built and seven miles of existing tracks will be retired. Some 234,000 cu. yd. of grading will be handled, and an extensive drainage system will be installed. There also will be a grade separation project and additional bridge work. A new general yard office and two yard suboffices will be built, as will an extensive communication and paging system. A contract covering grading will be awarded soon.



THIS NEW "SPECTACULAR" USES A RARE GAS—XENON

A SUNBURST of brilliant colors resembling a skyrocket in a nighttime sky, has brought a new note to outdoor color-light advertising. Recently completed atop the Chicago & North Western's Chicago passenger station is this 3,000-sq. ft. "spectacular" which features—apparently for the first time anywhere—the use of "flash line" lamps filled with the rare atmospheric gas xenon.

TO FIRE the "flashline lamps" a 10,000-volt charge must be built up in a condenser. This requires about eight seconds, during which the sign's regular neon tubing spells out an intermediate message as shown above (right). Then the streamer of red light "takes off" from the C&NW herald; ducks behind the UP shield; "bursts" with a momentary white flash from a large floodlamp; and finally . . .

FLASHES brilliant colors from the radiating xenon lamp tubes. In all there are 90 distinct steps to the display. Faces of all component parts are made of fused glass porcelain. The General Outdoor Advertising Company reports construction consumed 6,280 man-hours. Current consumption? All the C&NW will say is that "in each month's operation, it could light 1,000 homes for a like term."

CUT YOUR COSTS WITH

here's how it works

1

YOU ORDER REBUILDS of major Diesel locomotive components from your nearest Electro-Motive Branch. (Rebuilt traction motors available at nine convenient depots.) We ship you fully warranted factory-rebuilt assemblies from our "Unit Exchange" pool. In most cases, delivery can be made in your shop within 24 hours!

2

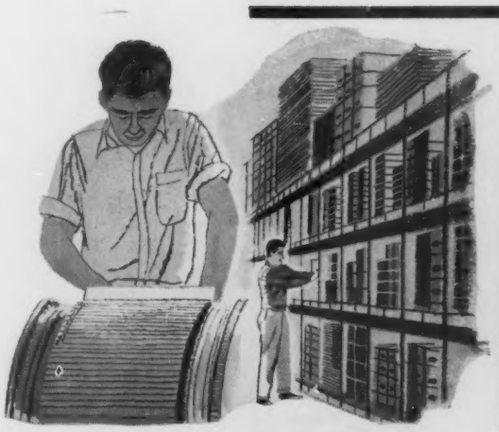
YOU RETURN WORN UNITS after you have received the rebuilds. No need for you to keep locomotives out of service waiting for assemblies to be rebuilt. With "Unit Exchange" we "carry the spares" for you— you save considerable investment in inventories of parts and assemblies.

"UNIT EXCHANGE"

here's how you save

3

WE REBUILD YOUR WORN UNIT by production-line methods—automatically incorporating the latest design and parts improvements. Every unit we rebuild carries the same warranty as a new assembly. No guesswork about its performance!



4

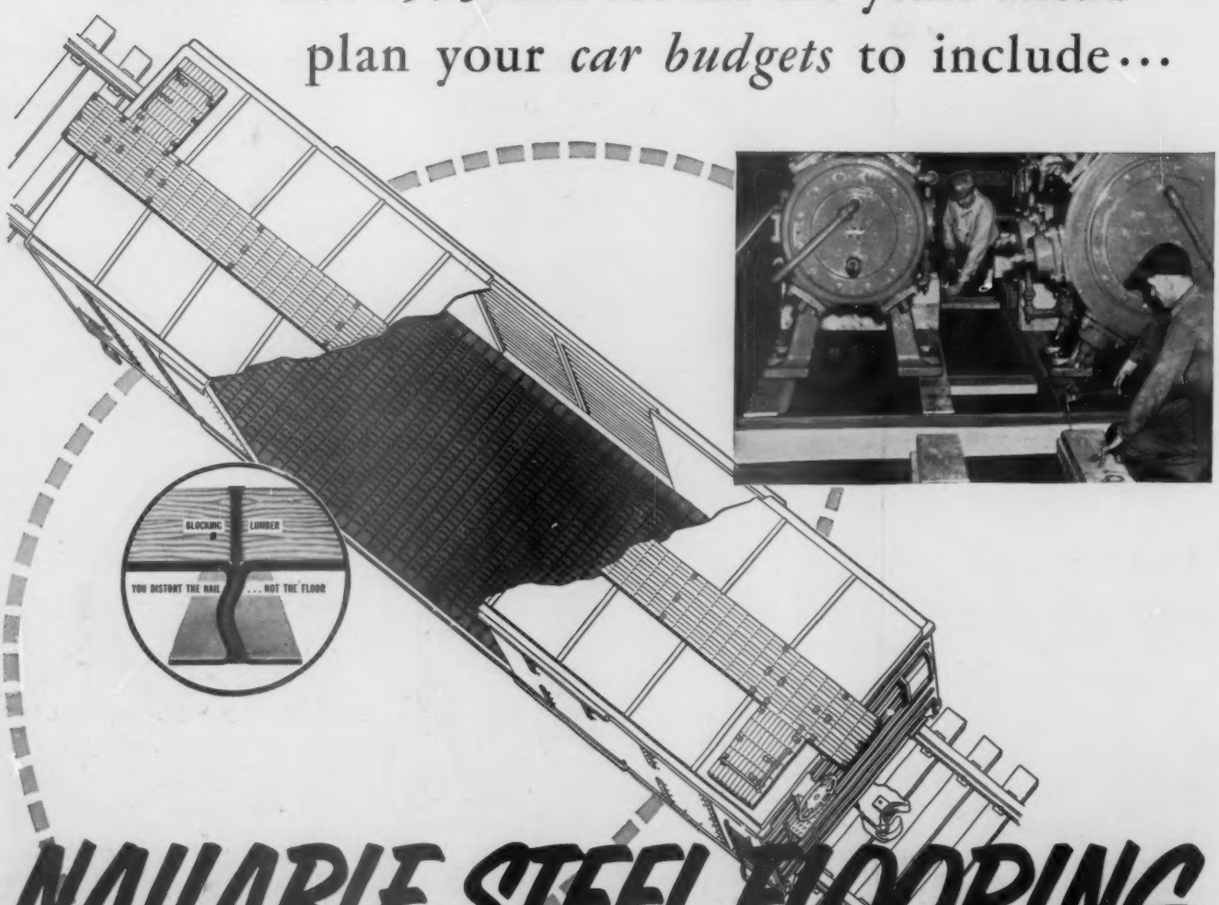
WE BILL YOU only for the labor and materials needed to put your worn unit into the same top-standard condition as the "Unit Exchange" assembly you received. Low, flat-rate prices itemized in our Factory Rebuild Catalog are the same on "Unit Exchange" as on units we rebuild and return. You get the same top-quality work—and pay no premium for "Unit Exchange."

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS

GENERAL MOTORS LOCOMOTIVES

LA GRANGE, ILLINOIS · HOME OF THE DIESEL LOCOMOTIVE
In Canada: GENERAL MOTORS DIESEL, LTD., London, Ontario

For 1953 and for all the years ahead—
plan your *car budgets* to include...



NAILABLE STEEL FLOORING

THE FREIGHT CAR FLOOR OF THE FUTURE

AVAILABLE TODAY!

Only NAILABLE STEEL FLOORING withstands all ways of loading—and carries every kind of load . . . takes the concentrated weight of lift trucks in boxcars . . . the impact of magnet and clamshell loading in gondolas . . . with a minimum of maintenance. In *all* cars, N-S-F, when welded to the car structure, reduces stresses of impact shocks at critical points on the underframes.

Yet remember: N-S-F carries *blocked* and *skidded* loads, too! It holds them with maximum security. And its nail-holding efficiency is *not* reduced by repeated nailing operations. NAILABLE STEEL FLOORING makes every gondola a double-duty car—capable of handling rough freight as well as finished freight requiring blocking.

N-S-F, made from tough N-A-X HIGH-TENSILE steel, is the way to equip *all* cars for the materials handling methods of the years ahead.

N-S-F
for NAILABLE
STEEL FLOORING
SAFER-STRONGER

Sales representatives in
Chicago, Philadelphia,
St. Louis, Atlanta, Omaha,
Denver, San Francisco,
Montreal and New York

53-SF-4A

PATENTS PENDING

GREAT LAKES STEEL CORPORATION

PRODUCER OF N-A-X HIGH-TENSILE STEELS

STEEL FLOOR DIVISION • Ecorse, Detroit 29, Michigan

NATIONAL STEEL CORPORATION

NATIONAL STEEL

When Time Flies

...on chilled steel wheels!

When trains are constantly speeding towards you from four directions—as at this heavy traffic crossing—there isn't time to "wrestle" with a motor car.

That's why you'll find a Fairbanks-Morse Model 101 motor car working there—and elsewhere—bringing safety to hazardous operating areas.

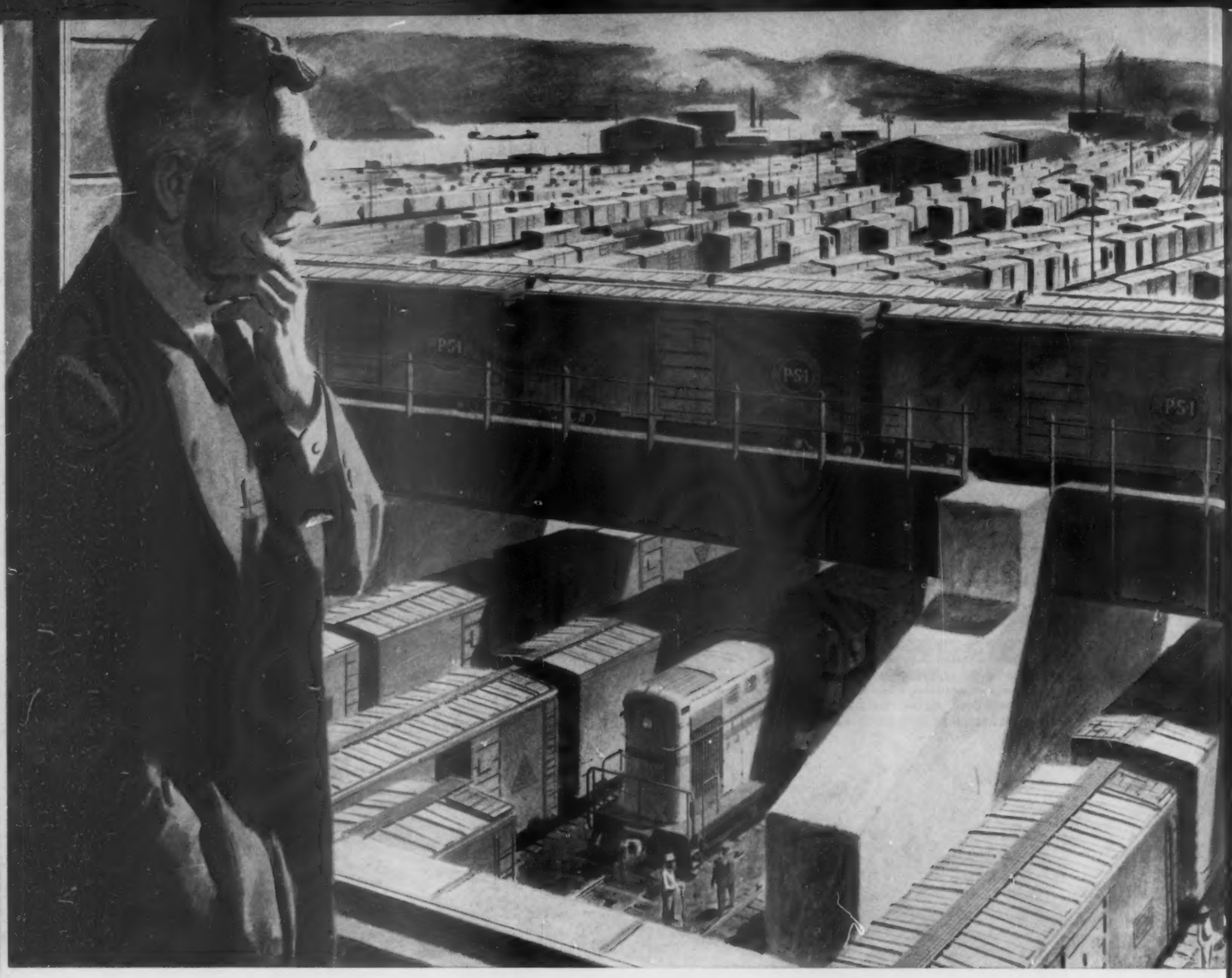
Low lifting-weight, balance, rail skids between the wheels—all contribute to easy, *fast* set-off anywhere by one man. Add features of immediate reverse, four-wheel brakes, grouped controls, full visibility—and you'll see why the Model 101 sets the standard for motor car safety on the rails today.

For all maintenance, inspection and signalling service, look to the complete line of Fairbanks-Morse cars. You'll find the answer to safe, reliable transportation. Fairbanks, Morse & Co., Chicago 5, Ill.

FAIRBANKS-MORSE

a name worth remembering when you want the best

RAIL CARS • DIESEL ENGINES AND LOCOMOTIVES • ELECTRICAL MACHINERY • PUMPS
SCALES • HOME WATER SERVICE EQUIPMENT • FARM MACHINERY • MAGNETOS



THE PROOF IS IN YOUR OWN YARD

The record breaking PS-1 serves the nation's railroads dependably and economically. Look at any freight consist and count the number of PS-1s. Here is the proof that Pullman-Standard standardized box cars are a good answer to the rising costs of today's freight operations. The sturdy PS-1 box car is being bought and reordered by a majority of the country's leading railroads—proof that quality as well as economy leads to the selection of a box car designed for long service life.

STANDARDIZATION MEANS FLEXIBILITY

Steady and high production makes an order for one or 3,000 PS-1s possible and practical for the first time in railroading history. Each PS-1 embodies the advantages of specialized engineering and the economies of continuous production. At the same time, construction and design are flexible enough to allow certain optional features in the PS-1

50,000 PS-1s set the pace

56 RAILROADS PROVE THAT THE PS-1 ANSWERS THE NEED FOR A STANDARDIZED BOX CAR

Single orders have run as high as 3,000 . . . or for just one PS-1. Repeat orders—as many as five times—have come in from some of these 56 railroads. Unless the PS-1 had been designed to meet and beat the requirements of today's changing operating conditions, it could not have gained the leadership it has won in just five years. The PS-1 has earned its acceptance in dependable, day-to-day performance.

While the PS-1 is a standardized box car, its specifications have not been completely "frozen." Design and production are flexible enough to allow certain optional features for individual railroads. This flexibility also permits Pullman-Standard research and "on-line" investigation to continually look for improvements in design and construction, so that railroads can enjoy even greater economies in PS-1 performance.

If you require fast delivery of this outstanding box car—at lower cost—get the facts on the PS-1.

YOUR NEEDS CREATE THE PULLMAN "STANDARD"

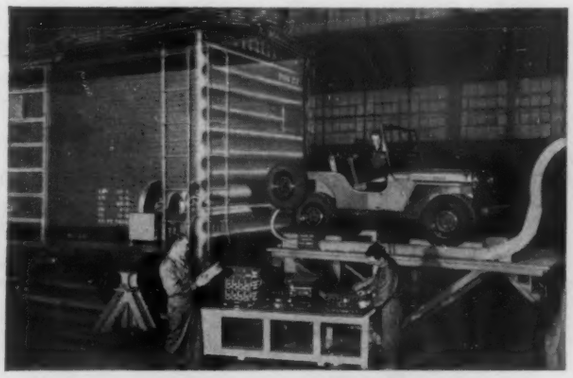
PULLMAN-STANDARD

CAR MANUFACTURING COMPANY

SUBSIDIARY OF PULLMAN INCORPORATED

79 EAST ADAMS STREET, CHICAGO 3, ILLINOIS

BIRMINGHAM, PITTSBURGH, NEW YORK, SAN FRANCISCO, WASHINGTON

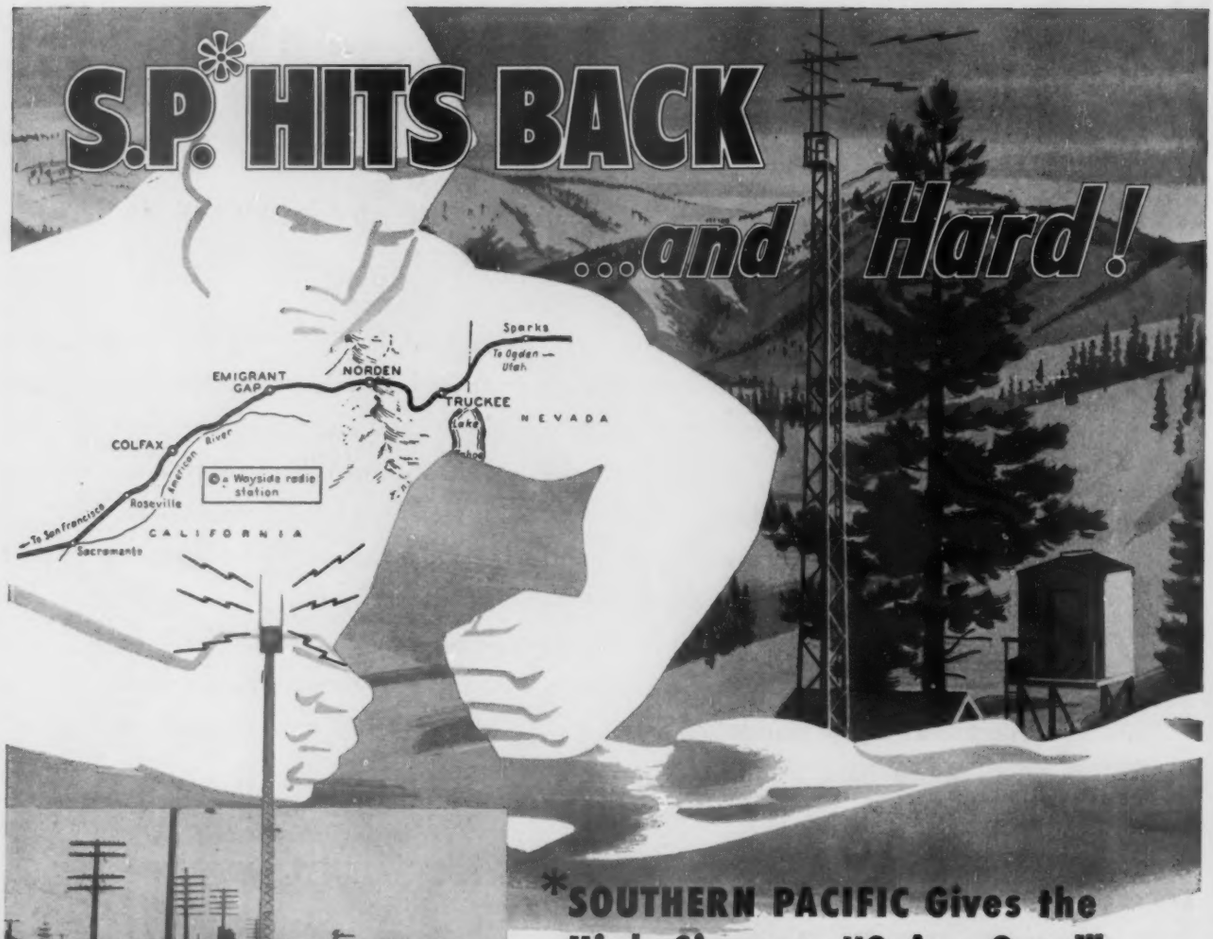


RESEARCH AND DEVELOPMENT

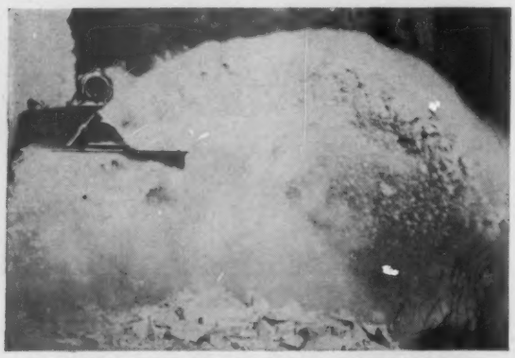
Pullman-Standard Research & Development Laboratories reproduce "on-line" conditions encountered at approximately 50 mph to discover possible trouble spots. Two eccentric flywheels mounted over the center sill at the bolster build up a vibration so severe that the lading in the box car leaves the floor. This and other tests results in continuous improvement of the PS-1.

SALES AND SERVICE ENGINEERING

Pullman-Standard Sales and Service engineers travel well over 100,000 miles a year for facts on box car operating conditions. Above: data on truck wheel loadings were used by our Research and Development engineers in designing PS-1 floors to stand up under heavier materials handling equipment carrying heavier loads. All components are thus engineered for dependability.



The wayside station at Truckee has an operator on duty 24 hours daily. The loudspeaker on its communication console reproduces voice calls from the dispatcher's line wire circuit and from trains within the station's range.

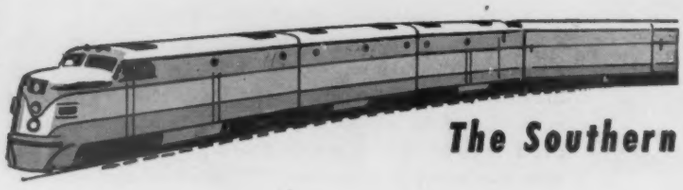


Snow-fighting equipment on the Sierra Nevada line is equipped with Motorola two-way radio tuned to a special frequency to operate only with extra radio transmitter-receiver stations at Norden and Emigrant Gap.

*SOUTHERN PACIFIC Gives the High Sierra a "Going Over!"

Winter after winter, year in and year out, the Southern Pacific had fought the normally heavy snowfall over the High Sierra. Their relentless oponent sometimes got in an early sneak punch at the wire communication facilities, which in turn limited the efficient employment of snow-cleaning forces and equipment.

This winter, though, it was a different story. Southern Pacific landed the first blow. It had back-stopped existing communications with Motorola Mainline radio and was ready to do some quick punching on its own! Result: a winning decision . . . *not one serious stoppage* over the High Sierra from Colfax to Sparks!



The Southern

Motorola Mainline Radio

Helps Southern Pacific Win Decision Over Storm Blockages!

The Southern Pacific Railroad has put Motorola radio in four mainline wayside stations in the mountainous area of its Sacramento Division. The Dispatcher for this division is located at Sacramento. The wayside stations, stretching over more than 100 miles of railroad and reaching an elevation of 6880 feet, are located at Colfax, Emigrant Gap, Norden and Truckee.

Although operators are present at these points, the Motorola system permits the Dispatcher to control any of the four stations over the Dispatch line. The system provides: (1) Contact between Operator or Dispatcher and train, (2) Indestructible communications between critical points and (3) Deployment of snow-fighting equipment by radio.

Motorola instant two-way radio coordinates activities between operating personnel, snow-fighting crews and trains . . . to help win the tough battle of terrain and the elements in the High Sierra. *For full details on the uses of railway radio, call your Motorola engineer, or write to Dept. 2286-RA.*

Operator pushes press-to-talk button on microphone to call dispatcher. Such a call is reproduced by the loudspeaker in the dispatcher's console, giving instant 2-way communications between vital links in the system.

Dispatcher's radio control console has an enclosed loudspeaker and small toggle-type levers, with associated indication lamps, to control incoming calls from wayside stations and from dispatcher's office.

Motorola®
Communications & Electronics, Inc.
A SUBSIDIARY OF MOTOROLA, INC.
900 N. Kilbourn Ave., Chicago 51, Illinois
Roger's Majestic Electronics Ltd., Toronto, Canada

Specialists AND WORLD LEADERS

IN 2-WAY RAILROAD RADIO

- Yard-and-Terminal
- End-to-End
- Train-to-Wayside
- Wayside-to-Wayside
- Car-Checking
- Train-to-Train

Pacific Is One of Over Fifty Railroads Using Motorola 2-Way Radio

Here's why SATCO-LINED JO

can help you *LICK THE* SU

A realistic examination of the cause of summer hot boxes shows how heat-resistant Satco can help overcome them—and cut hot box costs in every season of the year.

SATCO lining metal has a melting point 150° F higher than standard AAR babbitt. It's just as hard, just as strong at 300° F as standard babbitt is at normal summer operating temperatures of 180° F. And Satco has actually operated safely under maximum load at temperatures of 400° F and over—temperatures at which standard babbitt tends to melt, even under normal loads. *As far as the journal bearing itself is concerned, Satco gives you winter-like operation the hottest days of the year.*

But to lick the summer hot box problem completely, better maintenance should play a big role, too. That's because abnormal running temperatures definitely begin where good maintenance practices leave off. You see this once you're familiar with certain characteristics of solid bearing operation.

The Cause of Summer Hot Boxes

Normally the operating temperature of solid-type bearings is 80° F to 100° F above the atmospheric temperature. Thus, on the very hottest days the maximum journal bearing temperature should be only about 200° F. But even the standard bearing can, and often has, operated safely at temperatures above 250° F. So there's a big margin of safety even with standard babbitt right at the start.

But dirty oil, dirty packing, dry packing, rough-turned journals and collars, short-strand or matted packing, excessive truck lateral, misaligned trucks, worn wedges, worn box roofs, and many other conditions all tend to increase the temperature differential above atmospheric, and shorten this margin of safety. Of course, where two or more of these conditions exist, the temperature rise is greater than for any one condition alone. And when maintenance is lax, eventually you reach the point where the operating temperature of particular journals becomes critical in summer months, even though these same journals might operate satisfactorily in any other season.

Freight Car Bearing Performance on 5 Class 1 Railroads for October, 1952

ROAD	TOTAL CAR MILES	CAR MILES PER HOT BOX
A	49,997,928	1,666,598
B	107,851,862	657,633
C	90,388,084	799,895
D	46,263,284	771,054
E	7,852,864	1,121,838
Total	302,354,022	808,433

These are the records for five top railroads for the month of October, 1952. Satco-lined journal bearings, properly maintained, would make it possible to equal or better these records even in the summer months.

JOURNAL BEARINGS

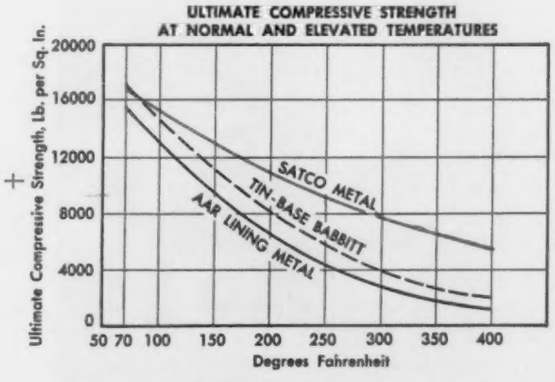
SUMMER HOT-BOX PROBLEM

Year Round Good Practice Needed

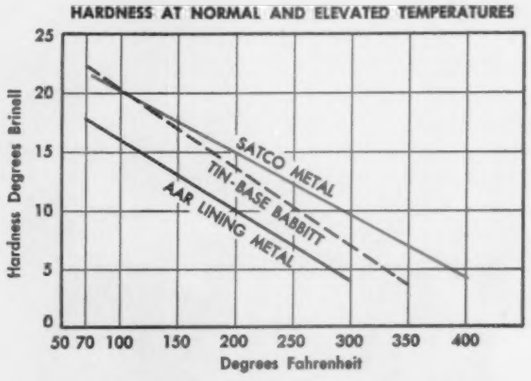
It's important to recognize too that the seeds of the summer hot box are sown in other seasons of the year. And because of the tremendous number of units involved, no concentrated drive of short duration, as in summer, can fully correct conditions that have been permitted to exist for many months.

Satco Offers Improvement at Low Cost

The big point about Satco is that it extends the margin of safety regardless of operating conditions. Because of its higher melting point, Satco is more resistant to lint wipers and waste grabs, too—not only in summer but throughout the year. It's practically a guarantee of better performance—at a fraction of the cost of any other proposed improvement. Then, too, with Satco you still have all the other advantages which solid-type journal bearings bring to railroad rolling stock. You can take the biggest load, make the fastest schedule. You save up to 1500 pounds excess dead weight per car and get the smoothest ride on any standard truck. But best of all you are sure of remarkably high bearing efficiency at the lowest possible cost. Be sure to write for your free copy of "The Facts About AAR Solid Journal Bearings." Magnus Metal Corporation, 111 Broadway, New York 6; or 80 E. Jackson Blvd., Chicago 4.



This graph shows Satco's big advantage in ultimate compressive strength at elevated temperatures and is the measure of Satco's greater resistance to load at these temperatures. But note that at starting temperatures Satco's compressive strength is approximately the same as that of the other types of lining metal, thus assuring a high degree of conformability to the journal surface.



The higher Brinell hardness of Satco lining metal at elevated temperatures, as shown in the graph above, is the measure of its greater resistance to wear at these temperatures. This advantage is one result of Satco's 150° F higher melting point. Satco bonds are also about 20% stronger than bonds with AAR lining metal.

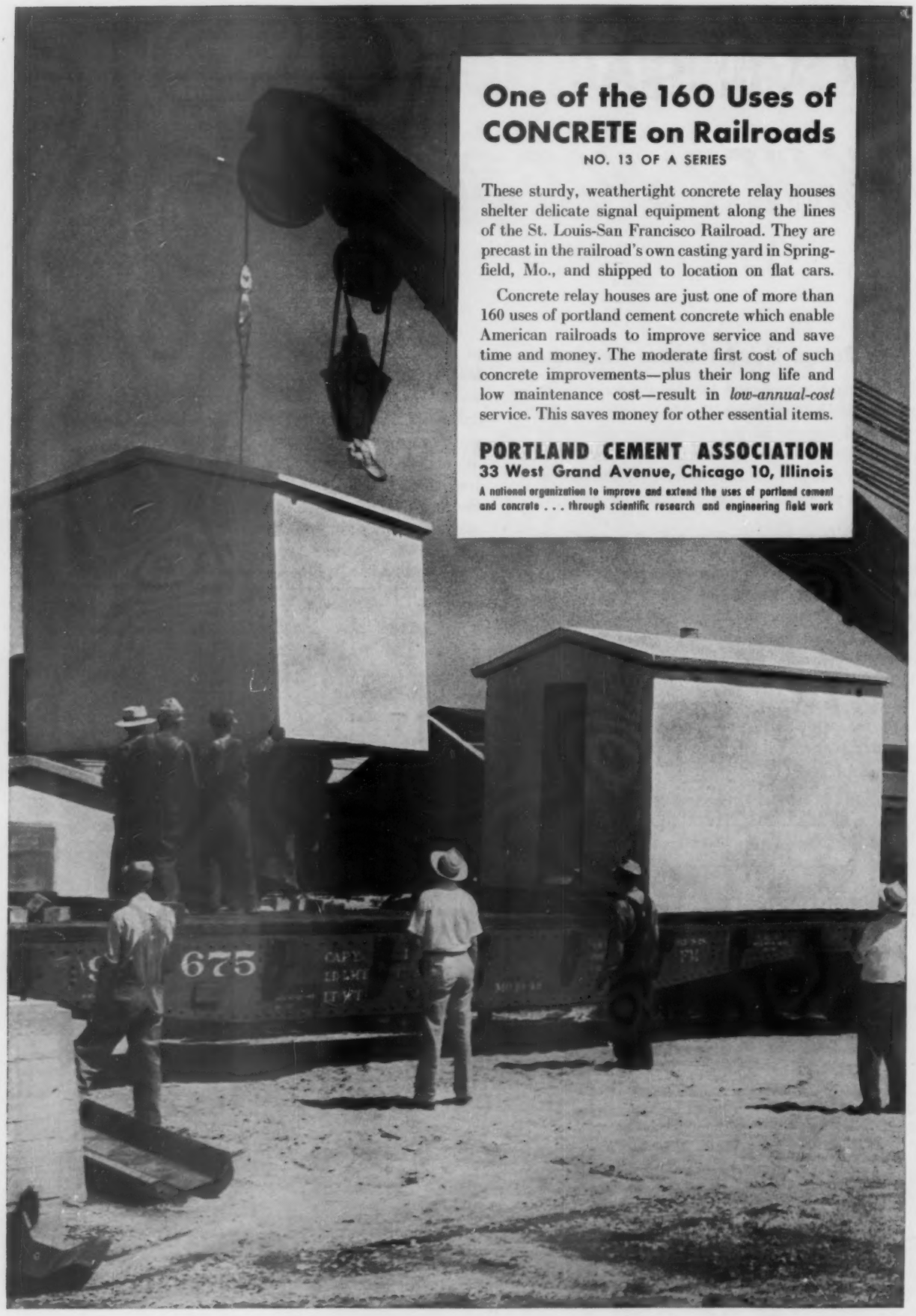
MAGNUS

Solid Bearings

Right for Railroads

...in performance...in cost

MAGNUS METAL CORPORATION *Subsidiary of* **NATIONAL LEAD COMPANY**



One of the 160 Uses of CONCRETE on Railroads

NO. 13 OF A SERIES

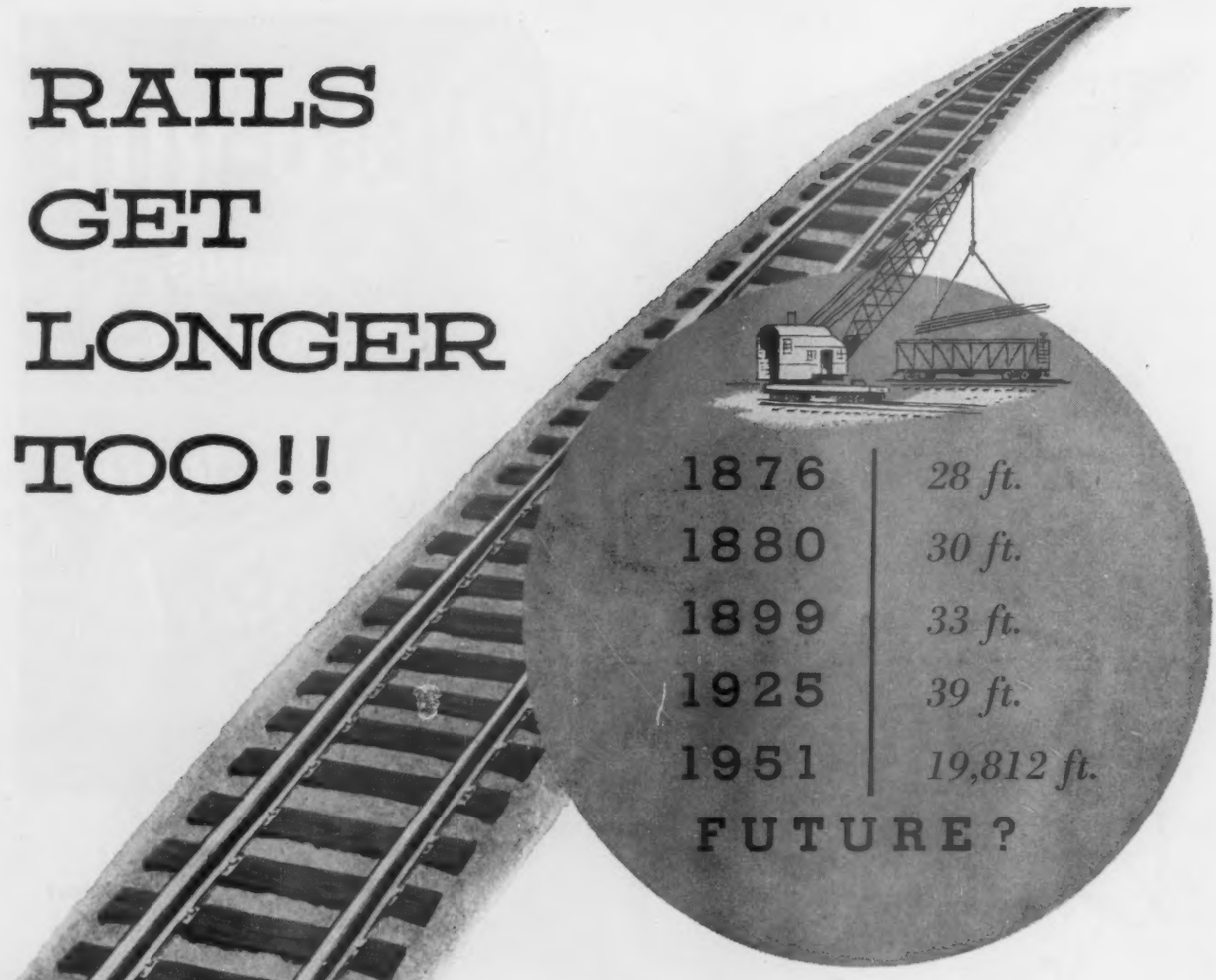
These sturdy, weathertight concrete relay houses shelter delicate signal equipment along the lines of the St. Louis-San Francisco Railroad. They are precast in the railroad's own casting yard in Springfield, Mo., and shipped to location on flat cars.

Concrete relay houses are just one of more than 160 uses of portland cement concrete which enable American railroads to improve service and save time and money. The moderate first cost of such concrete improvements—plus their long life and low maintenance cost—result in *low-annual-cost* service. This saves money for other essential items.

PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

RAILS GET LONGER TOO!!



Full-length cables for suspension bridges and skyscraper elevators are made in one piece — not by fastening short lengths together. For these and similar jobs, fabrication methods had to be developed to produce mile-long materials.

Engineering always produces the material to fit the application

Until recently, the thinking on rail lengths in railroad track construction was governed by the usual means of transportation — the 40-ft. gondola. This outmoded "guide" to rail lengths is upset by the fact that more and more railroads are producing continuous welded rail with OXWELD'S RIBBONRAIL Service and equipment. And they find transportation no problem — push-cars, flat cars, or skids will efficiently handle rail of any length.

Get your rail planning tuned to RIBBONRAIL Service. Call or write OXWELD for more information.

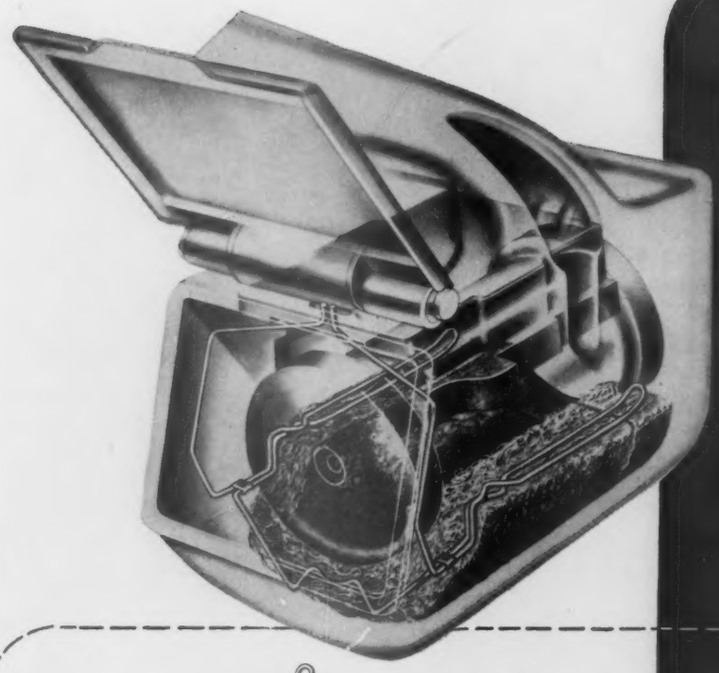
"Oxweld" is a trade-mark and "Ribbonrail" is a service mark of Union Carbide and Carbon Corporation.

Ribbonrail
SERVICE MARK

OXWELD RAILROAD SERVICE COMPANY
A Division of Union Carbide and Carbon Corporation

UCC

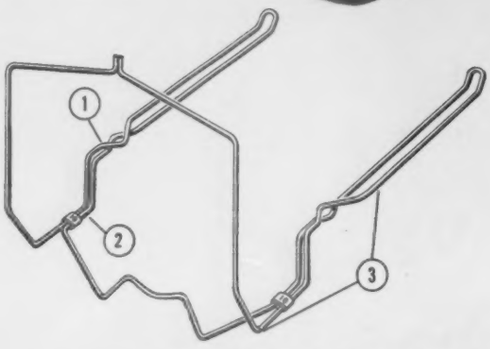
Carbide and Carbon Building — Chicago and New York
In Canada: Canadian Railroad Service Company, Limited, Toronto



HOLD-RITE

PACKING RETAINERS

Now 3 ways Better!



OVER *9,000,000 NOW IN USE*

Hold-Rite Retainers are easy to apply, easy to remove, re-usable time-after-time. They prevent rolling of packing, hold down loose ends, reduce waste-grabs.

Tested and proved by over 160 railroads and private car lines—and now still further improved—they provide a new high in retainer performance at the lowest maintenance cost ever. Ask for new Folder No. 190. It tells the whole Hold-Rite story.

1 ***New positive collar clearance!***
90° downward offsets prevent contact with collar, even at high speeds or when "humping."

2 ***New clips are stronger, heavier!***
Sturdy clips won't open-up or let go.

3 ***New longer wear-free service!***
Formed offsets on extension arms prevent contact of clips with journal box. Clips can't rub and weaken.

NEW A.A.R. APPROVAL! Hold-Rite Retainers have now been approved for Separable Bolted-Type Boxes, as well as for journals with and without cast-in packing retainer ribs.

MR. ESPEY ★ SPRING PACKING CORPORATION ™

SPRING PACKING CORPORATION

332 SOUTH MICHIGAN AVENUE • CHICAGO 4, ILLINOIS

SERVICE PIN... for you, too

Chances are you've seen this pin. It represents 20 years of service with Socony-Vacuum. The average length of service of all our representatives calling on railroads is well above this figure. All this petroleum experience—the world's greatest—is yours when you call in Socony-Vacuum. Why accept anything less?

Socony-Vacuum Railroad Lubricants *Correct Lubrication*

WORLD'S GREATEST LUBRICATION KNOWLEDGE AND ENGINEERING SERVICE

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Would your hand brakes become inoperative if this happens?

If a broken gear tooth can make a hand brake inoperative—possibly at a critical time—is such a hand brake safe? We kept this known hazard in mind when designing the Equipco "Non-Spin" Brake.

That's why the Equipco is made with an *11-tooth* pinion—big enough to span such a gap. You may wish to look into this *plus* safety feature of Equipco Non-Spin Wheel Hand Brakes.

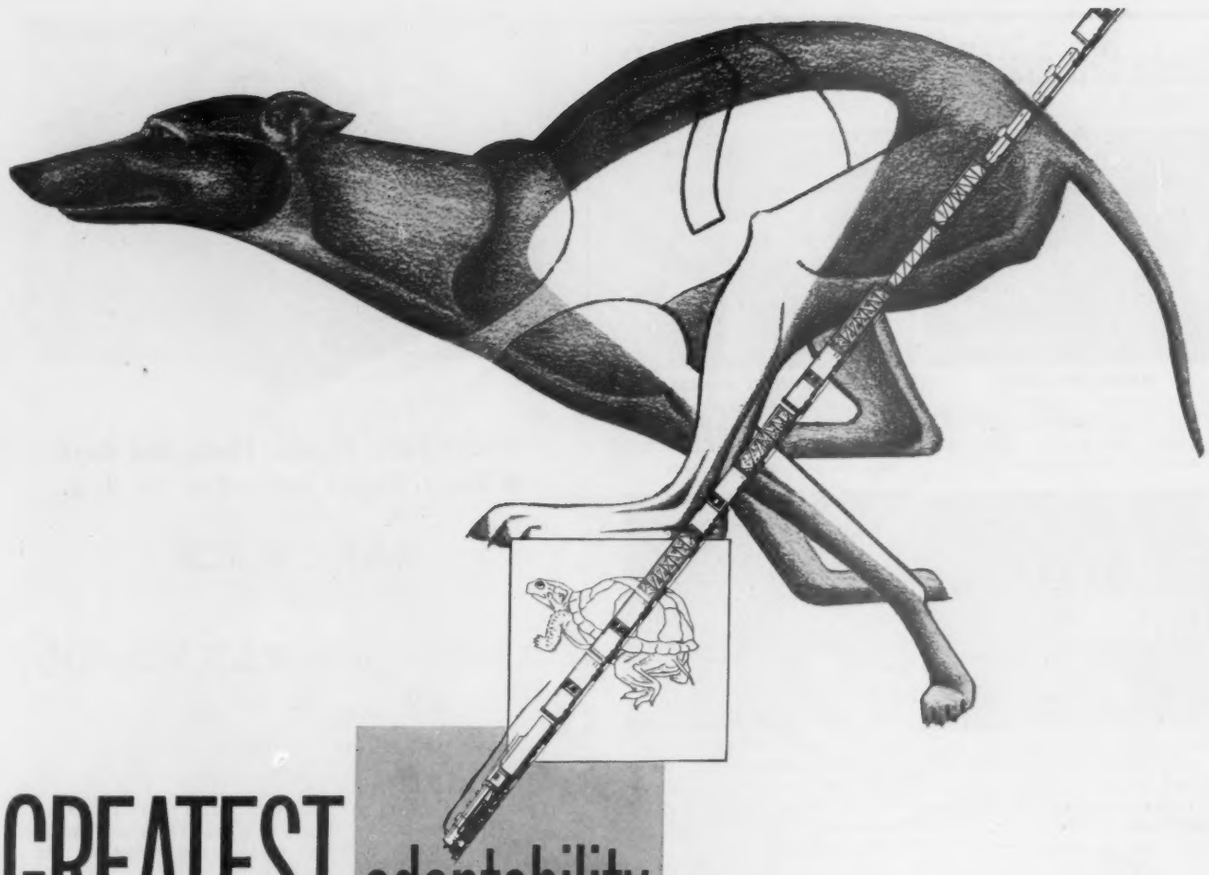
AAR-CERTIFIED
PATENTS PENDING

Equipco

Non-Spin
WHEEL
HAND BRAKE

HAND-BRAKE SAFETY. We'll be glad to send you a copy of this informative 12-page booklet. Write today.

Equipco Hand Brake Division
UNION ASBESTOS & RUBBER COMPANY
332 SOUTH MICHIGAN AVENUE • CHICAGO 4, ILLINOIS



GREATEST adaptability at all speeds

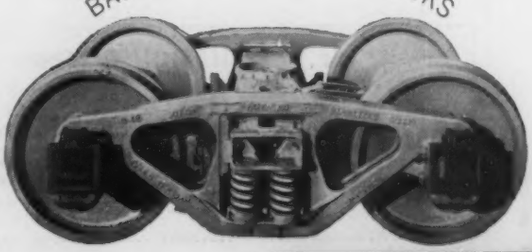
"turtle" or "greyhound"

Whether you're "inching" along like a turtle or "streaking" away like a greyhound, Barber Stabilized Trucks give heavy or light lading the smoothest possible ride.

If the load is light, a first-stage period of soft damping gives a "soft" ride . . . for heavier loads, up to the allowable 10% overload, a heavier damping action gives exceptional protection against "over-solid" blows.

These are some of the reasons why over 300,000 Car Sets of Barber Trucks have been specified.

BARBER STABILIZED TRUCKS



The side springs increase the capacity of the Barber Truck, since they carry their share of the load.

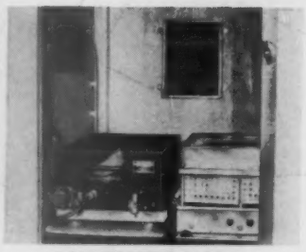
617T

STANDARD CAR TRUCK COMPANY
332 SOUTH MICHIGAN AVE. CHICAGO, ILL.

these C-D installations are paying off!

RACK-MOUNTING

C-D vibrator converter installation showing rack-mounting with plug-in feature which simplifies wiring and facilitates installation.



CONVENIENT SIGNAL

Pilot light changes from green to red to indicate operation on stand-by vibrator. No attention is required from the train crew.

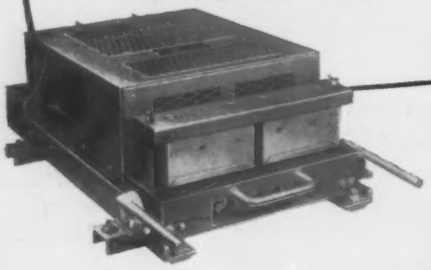
SELF-SERVICING

Patented C-D dual vibrator circuit with automatic switch-over, assures uninterrupted radio communications en route.

ONLY 2 MINUTES

This railroad finds that it takes only two minutes to plug in a fresh vibrator at the depot, during routine maintenance check-up.

C-D vibrator converter



- *Saves 60% on cost of initial installation*
- *Saves 50% each year on maintenance*
- *Services itself en route*
- *Field-proved and accepted by over 50 leading railroads*

CONSISTENTLY CORNELL-DUBILIER DEPENDABLE

VIBRATOR CONVERTERS WITH RAILROAD DEPENDABILITY
by the makers of world-famous C-D capacitors

PLANTS IN SOUTH PLAINFIELD, N. J.; NEW BEDFORD, WORCESTER AND CAMBRIDGE, MASS.; PROVIDENCE, R. I.; INDIANAPOLIS, IND.; FUQUAY SPRINGS, S. C.; AND SUBSIDIARY, THE RADIART CORP. CLEVELAND, OHIO

Photos courtesy Bendix Radio, Motorola, Inc., Railway Signaling & Communications, Missouri Pacific R. R.

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THE ENGINEER'S REPORT

DATA

LUBRICANT RPM Delo Oil R.R.

UNIT Diesel Locomotive cylinder assembly

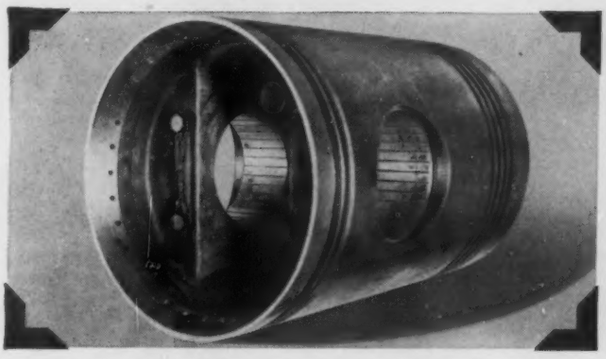
SERVICE Mountain Freight

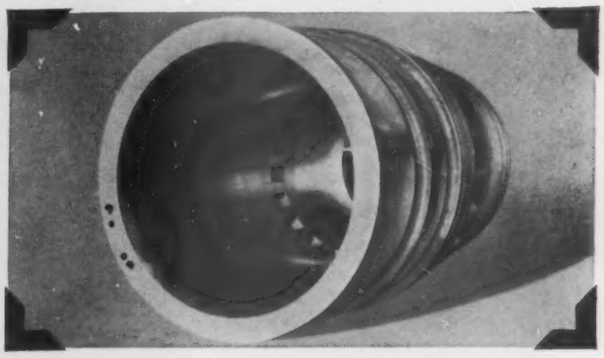
LOCATION Transcontinental freight service on Moffat tunnel + Royal Gorge Routes

PERIOD 12 Years

FIRM Denver + Rio Grande Western R.R.Co.

Over a million miles on cylinder liners and pistons!





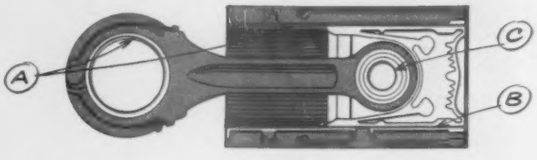
IN SERVICE APPROXIMATELY 1,000,000 MILES in Denver & Rio Grande Western Railroad diesel locomotive engines, this piston and cylinder liner were always lubricated with RPM DELO Oil R.R. At the end of that time wear measurements (inches) were only: Piston Skirt—0.001; Ring Grooves—No. 1—0.003 to 0.006, No. 2—0.002, No. 3 & 4—none; Cylinder liner (maximum diameter)—0.0095, (out of round)—0.002 to 0.004.

RPM DELO Oil R.R. has been the standard on the Denver & Rio Grande Western Railroad for over-the-road freight and passenger locomotives since their first power of this type was placed in service in January 1942. When mileage was totaled in February, 1953, 99,013,280 miles had been traversed by the Rio Grande freight diesel fleet of 171 units and only 299 cylinder liners out of 2765 had been scrapped for any reason. Many of the original pistons and cylinder liners were still in service and the average age of all these assemblies, including recently purchased power, was 5.16 years.

RPM DELO LUBRICATING OILS

TRADEMARK "RPM DELO" REG. U.S. PAT. OFF.

How RPM DELO Oil R.R. prevents wear, corrosion, oxidation



A. Special additive provides metal-adhesion qualities...keeps oil on parts whether hot or cold, running or idle.

B. Anti-oxidant resists deterioration of oil and formation of lacquer...prevents ring-sticking. Detergent keeps parts clean... helps prevent scuffing of cylinder walls.

C. Special compounds stop corrosion of any bushings or bearing metals and foaming in crankcase.

FOR MORE INFORMATION about this or other petroleum products of any kind, or the name of your nearest distributor handling them, write or call any of the companies listed below.

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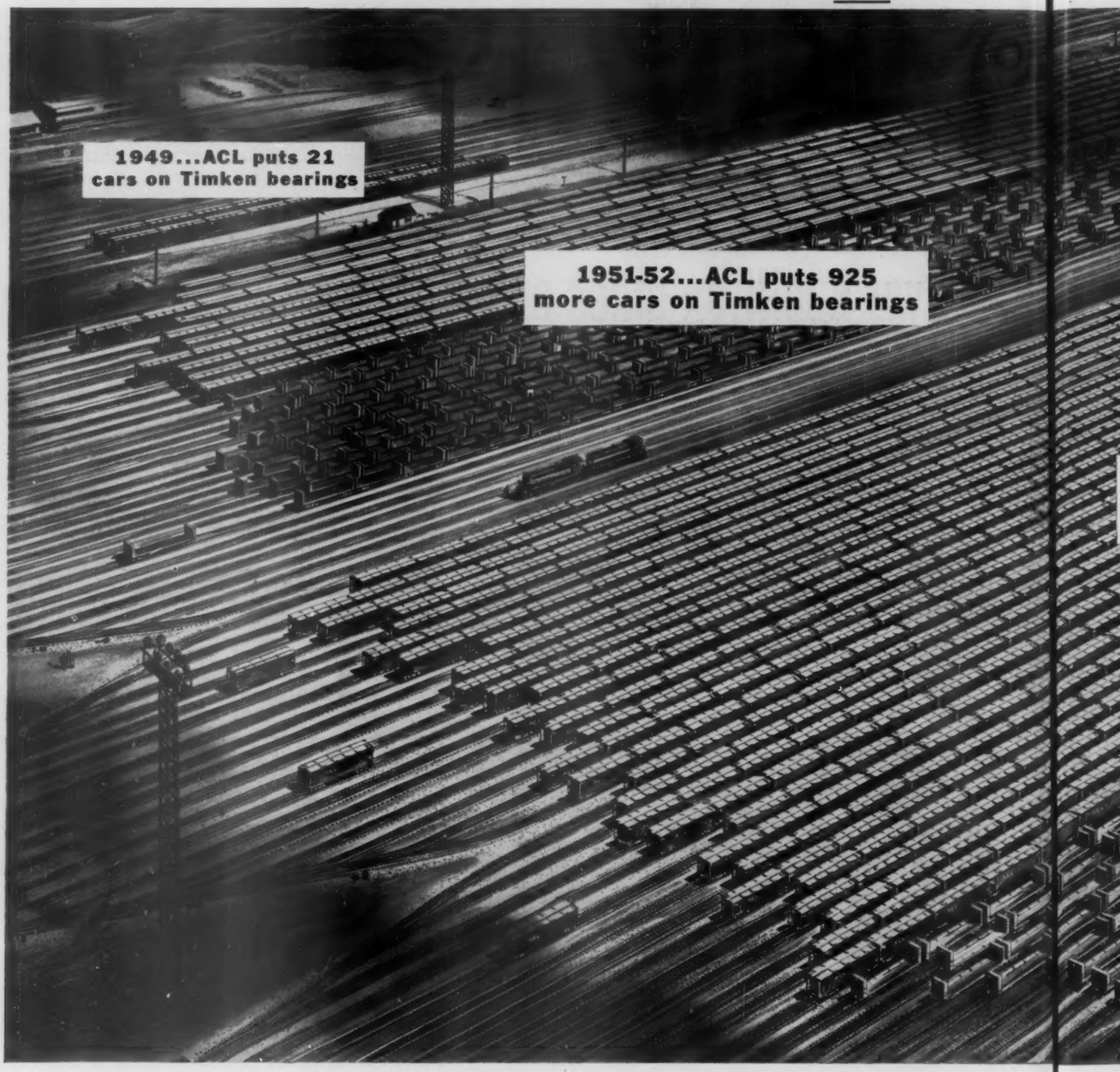
THE CALIFORNIA OIL COMPANY, Barber, New Jersey • THE CALIFORNIA COMPANY, Denver 1, Colorado

Watch the railroads GO . . . on



Atlantic Coast Line becomes the
with order for 2,000 more

ATLANTIC COAST LINE WILL HAVE 10% OF ITS FREIGHT CARS ON ROLLER BEARINGS

Two thousand more freight cars on Timken® roller bearings will give Atlantic Coast Line the largest "Roller Freight" fleet of any railroad.

ACL first switched 21 cars from friction bearings to Timken bearings in 1949. The resultant operating economies prompted adding 925 more in 1951 and 1952. With the 2,000 new cars in service, ACL will have 10% of its freight cars on roller bearings.

Four railroads go "Roller Freight"

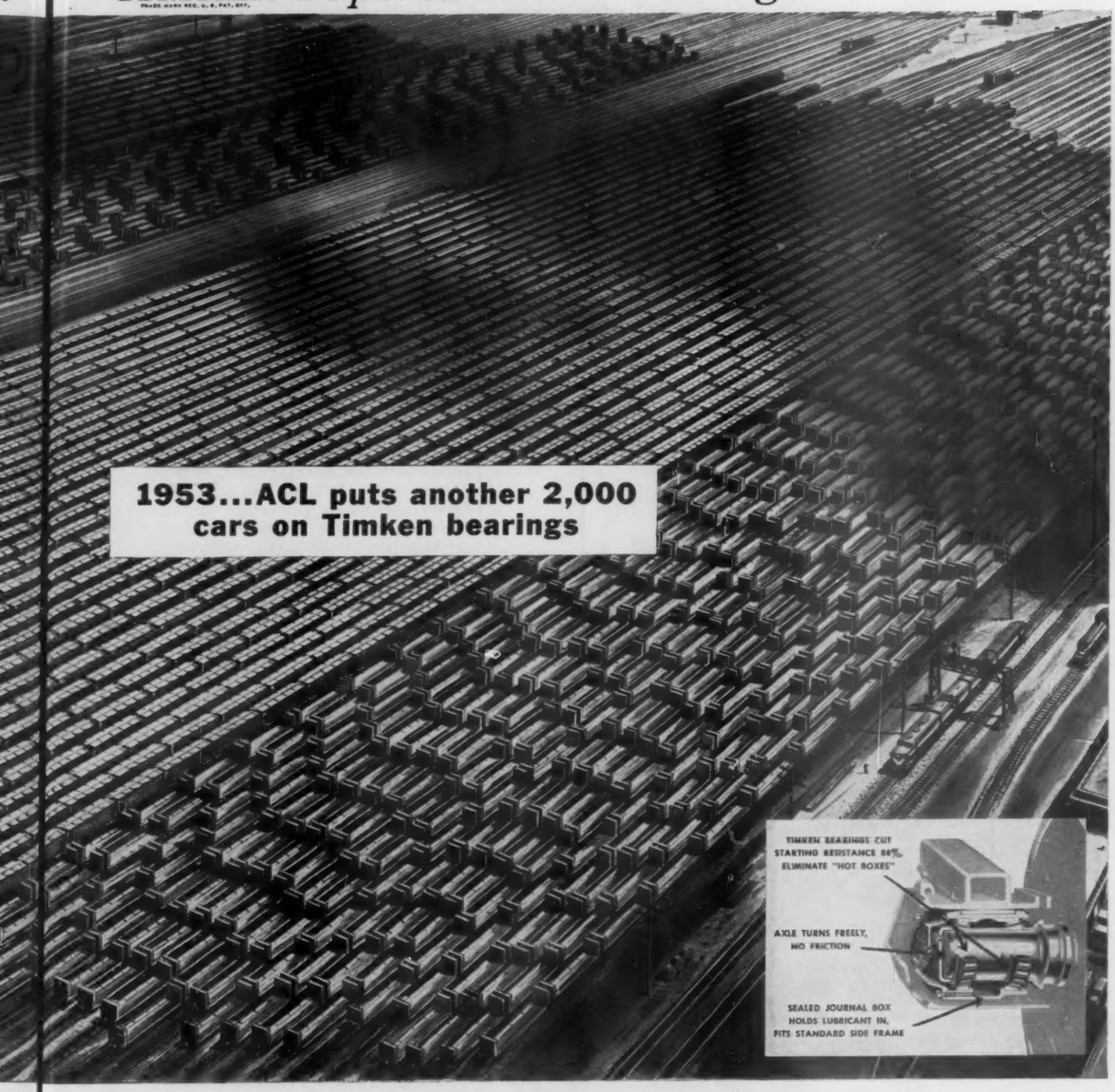
Three other forward-looking railroads have gone "Roller Freight", next great step in railroading. One with 2,000 "Roller Freight" cars on order, another with 1,000 cars in service, the third with 800 operating, 200 more on order. Other roads operate smaller numbers of Timken bearing equipped freight cars.

Faster, on-schedule freight service

Timken bearings are ushering in a

TIMKEN *Tapered Roller Bearings*

TRADE MARK REG. U. S. PAT. OFF.


1953...ACL puts another 2,000 cars on Timken bearings
TIMKEN BEARINGS CUT STARTING RESISTANCE 88%, ELIMINATE "HOT BOXES"
AXLE TURNS FREELY, NO FRICTION
SEALED JOURNAL BOX HOLDS LUBRICANT IN, FITS STANDARD SIDE FRAME

biggest "Roller Freight" railroad cars on Timken® bearings

"streamliner" age for freights as they did for passenger trains. Shippers will get faster, on-schedule service because Timken bearings eliminate the hot box problem—main cause of delays.

One railroad's "Roller Freight" has gone 60 million car-miles without a hot box. Friction freight averages a hot box set-out every 212,000 car-miles.

22% return on "Roller Freight" investment

Unlike friction bearings, Timken roller bearings can go hundreds of thousands of miles without additional lubricant. They cut terminal bearing inspection man-hours 90%, lubricant costs as much as 89%. When "Roller Freight" rolls on all lines, railroads will earn a 22% annual return on the investment.

Not just a ball ○ not just a roller ▭ the Timken tapered roller ▭ bearing takes radial ◐ and thrust ⊣◐⊢ loads or any combination ✳

Copr. 1953 The Timken Roller Bearing Company, Canton 6, O. Cable address: "TIMROSCO".

Current Publications

BOOKS

Practical Handbook of Industrial Traffic Management, by Richard C. Colton with the collaboration of William D. Rankin. Second edition, 423 pages, illustrations. Funk & Wagnalls Company, 153 E. 24th street, New York 10. $6.

This book, said to be a textbook in 64 colleges, also serves as a handbook for the practicing traffic man; the young man who wants to make transportation his career; the student of economics anxious to complete his understanding of the major functions of modern business; and the business man who seeks pertinent facts on transportation of his inbound raw materials and outbound finished products. It contains chapters on the bill of lading; freight routing; freight classification; freight claims; distribution and warehousing; contract, private truck, and passenger car operations; expediting and tracing; export and import shipments; and railroad demurrage, siding, and weight agreements. These are supplemented by chapters on passenger traffic; equipping an industrial traffic department; and organizing a traffic department. There is a chapter devoted to representative questions from examinations given by the American Society of Traffic and Transportation, with reference to chapters where information on these questions may be found, and a chapter on definitions of miscellaneous transportation terms.

Industrial Traffic Management, by Thurman W. Van Metre. 552 pages. McGraw-Hill Book Company, 330 W. 42nd st., New York 36. $6.50.

This book discusses important problems with which the traffic manager is confronted, gives much of the history and background of these problems, and shows how they have been handled by public and private agencies. It describes the new Uniform Freight Classification and compares the new classification with the old. It also deals with recent legislation on administrative procedure, freight forwarding, and changes brought about by the spectacular growth of motor traffic. It discusses many technical features of traffic management, such as rates, tariffs, bills of lading, claims, insurance, routing, demurrage, terminal services, and rules of practice of administrative boards. Questions and topics for discussion on most chapters occur at the end of the book, and a list of study materials is included.

New Roads to Adventure in Model Railroading, by Louis H. Hertz. 340 pages, illustrations, drawings. Simmons-Boardman Publishing Corporation, 30 Church st., New York 7. $4.95.

This is primarily an idea book for model railroaders—a further exploration of some of the more widely followed or interesting further possibilities of the hobby for already active fans.

It is directed toward readers familiar with basic trends, techniques, and background of model railroading as a widespread adult hobby in the United States today. It is, in effect, a sequel to or continuation of the "Complete Book of Model Railroading" (*Railway Age*, October 29, 1951, page 68), and effort has been made not to duplicate any material found in that book. Rather, the present volume aims to begin where the other left off, either as a somewhat deeper survey of certain branches for beginners, or for the old hand at the game who is seeking some promising new line of interesting action. Chapters cover new paths in model railroading; organizing a model railroad; layouts where space is a problem; old-time layouts and era units; narrow and broad gauge model railroading; building scale models; international model railroading; the lure of live steam; outdoor model railroading; advanced selective control; controlling more than one train on the same track; trolleys and interurbans; collecting old tinplate trains and catalogs; special effects; and new frontiers.

Thanks to the Railroads here is a REAL railroad cooler

The railroads asked for:

- Rugged construction
- Compactness
- Clean, pure, cold water
- Ease of installation and operation
- Trouble-free service

The Marquette Cooler is "the cooler the railroads designed", with complete and dependable answers to their specifications. It is the cooler that has been modified and refined by railroad use.

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Diesel Locomotive Cooler
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FILM

The National Safe Transit Program. 16-mm., 30-min., sound, color. National Safe Transit Committee, 1346 Connecticut ave., N.W., Washington 6, D.C. Available for rent or purchase.

Outlines standardized pre-shipment tests for appliance packaging and how these tests are carried out. Also shows how the committee arrived at its set of durability standards through tests of actual shipments via rail, truck and air. The entire production emphasizes how terminal handling—not transit—is responsible for shocks and impacts that cause most damage. Inexpensively produced, the film is nevertheless effective. Though it deals with all forms of transit, it is suitable for showing to yard and freighthouse employees.

PERIODICAL ARTICLES

How to Rebuild a Railroad. Business Week, March 14, 1953, pp. 52-61. McGraw-Hill Publishing Company, 330 W. 42nd st., New York 36. Single copies, 25 cents.

"Unorthodox management," says Business Week, "has put the New York, New Haven & Hartford back on the track to profits." Under the headings: Putting down the roadbed, rebuilding, money matters, and smooth running, it outlines what the management has done.

Good Heads for Business, by George McCann. Tracks, March 1953, pp. 4-8. Publishing office, Chesapeake & Ohio, Terminal Tower, Cleveland 1, Ohio. Copies available on request.

The story behind the C&O's first district-wide management control conference, which, in the words of C. J. Millikin, assistant general manager of the Pere Marquette district, was designed to "develop an organization that produces a group of 'free wheeling' executives who can stand or fall on their own abilities without coddling from headquarters." Approximately 85 operating men—ranging from assistant trainmasters to superintendents—took the course, which covered such items as control of transportation costs, human relations, business trends, etc., as well as providing a broader knowledge of functions and needs of other railroad departments.

TRADE PUBLICATIONS

Westinghouse FE Railroad Radio. 8 pages, illustrations. Westinghouse Electric Corporation, 2519 Wilkins avenue, Baltimore 3, Md.

The five basic needs of railroad radio—(1) end-to-end, (2) train-to-train, (3) wayside-to-train, (4) dispatcher to wayside or train, and (5) bridging line wire breaks in an emergency—and how they can be met with Westinghouse FE type equipment, are described in this booklet, which also details the equipment's performance

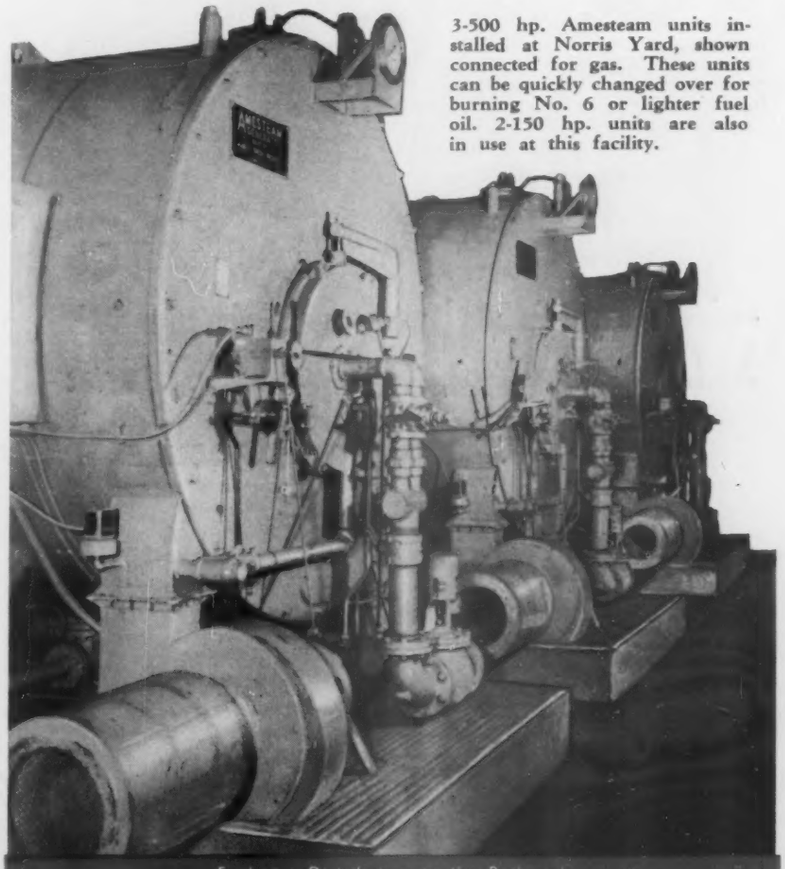
AMESTEAM . . .

At Norris Yard

HAILED as one of the most modern freight yards in the country, the Southern's $11 million Norris Yard at Birmingham is equipped with the most advanced devices and communications. The Diesel shop and other facilities at this outsanding "push-button" yard are served by three 500 hp. and two 150 hp. AMESTEAM Generators. Here again as in a host of other rail installations, "the Railroad Boiler" is providing substantial savings.

Completely automatic,* these units provide dependable heat and process steam at low cost. No boiler room attendants are required. AMESTEAM evaporates 15¾ pounds of water on 1 pound of fuel using No. 6 oil — representing better than 80% thermal efficiency, which is guaranteed. Single units from 10 to 600 hp. Design pressure — 15 to 200 lbs. Higher pressures on special order. *Phone, write or wire.

"The Railroad Boiler"



3-500 hp. Amesteam units installed at Norris Yard, shown connected for gas. These units can be quickly changed over for burning No. 6 or lighter fuel oil. 2-150 hp. units are also in use at this facility.

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and electrical characteristics. Brief case histories tell how FE radio has served to cut yard and train delays.

Hundreds of Uses for Ozalid, the Most Versatile Copying Process. 48 pages, illustrations. Ozalid division of General Aniline & Film Corp., Johnson City, N.Y.

The first pages of this brochure describe the Ozalid copy process and requirements for material to be copied. Section Two covers time, labor and money saving ways of using the copy process and describes techniques that make the best use of Ozalid equipment. Section Three describes different models of copying machines available, together with Ozalid accessories and materials. The last section takes case histories of shortcuts and savings reported by industries, railroads, colleges, etc., through use of copying machines.

PAMPHLETS

Plant-Centered Recreation for Defense Workers—Organization and Administration. 40 pages. National Recreation Association, 315 Fourth ave., New York 10. Free.

Characteristics of plant-centered recreation activities, how a program is started, types of organization for employee recreation programs, leadership, financing and examples of constitutions for plant-centered groups are included in this booklet. The difference in organization of recreation in large and small plants is fully explained. The booklet points out: "Although a plant-centered recreation program cannot and should not attempt to take the place of the community recreation program, there is a real need for an employee recreation program in many plants to supplement the activities of community recreation agencies." The booklet is aimed at the defense industry, but its contents are equally valuable for the non-defense plant as well.

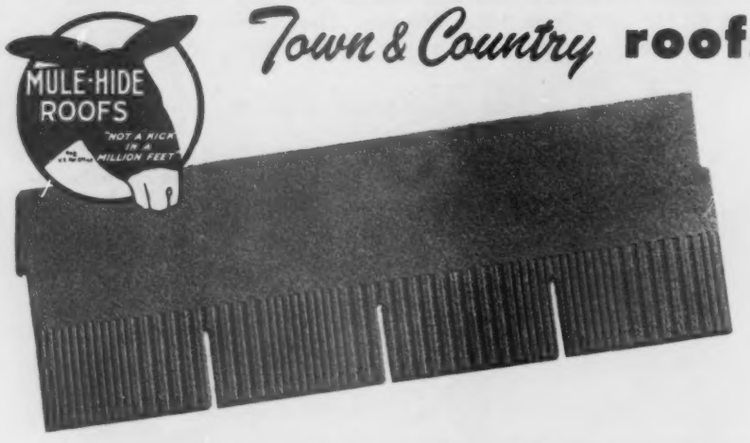
Training for Industrial Accident Prevention, by Walter A. Cutter and J. Duke Elkow. 64 pages. Center for Safety Education, Division of General Education, New York University, Washington sq., New York 3. Free.

Effective industrial safety programs require active participation by both management and labor, and the careful work of safety specialists, to mobilize all available resources to prevent accidents. As procedures and practices of accident prevention have developed steadily through the years, a need has arisen for more and more basic information for those responsible for initiating, directing, and supervising safety programs. Thus, industrial accident prevention has become a highly specialized activity calling for particular skill and training. Seeking to answer the question: To what extent can colleges and universities be expected to provide such specialized knowledge? Drs. Cutter and Elkow describe such activities and discuss their basic philosophies in this booklet. Subjects covered are the industrial accident-prevention specialist and his functions; training for safety in engineering and technical schools; training in accident prevention in non-engineering colleges, schools and departments; and recommendations for training in industrial accident prevention.

Economic Analysis of the Freight Car Manufacturing Industry of the United States, by C. Richard Marshall. 52 pages, illustrations. Marshall Railway Equipment Corporation, 50 Church st., New York 7.

This thesis, presented to the faculty of the graduate division of the University of Pennsylvania's Wharton School as a requirement for the degree of master of business administration, offers "a comprehensive analysis of the freight car manufacturing industry of the United States," the author states in his preface. "While it is true," Mr. Marshall adds, "that a considerable volume of information has been published on the technology of freight cars, there appears to have been, thus far, comparatively little attention focused upon the overall eco-

Many Railroads today specify MULE-HIDE *Town & Country* roofs



—because it's the only shingle with ALL these weatherproof features:

3⅞" WEATHER EXPOSURE
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300 LB. WEIGHT
4-UNIT DESIGN
SECURITY NAILING
PLUS—

11 beautiful colors!

COR-DU-ROY ribs & grooves that *SLOW DOWN ROOF WEAR!*

Write—For samples and full specifications
THE LEHON COMPANY — Chicago 9

nomic picture of the industry which produces these freight cars."

Although primary attention is given to major commercial carbuilders, Mr. Marshall attempts "to arrive at an appreciation of the impact of carbuilding by the railroads themselves." Consideration of this aspect of the industry is concentrated mainly on the car building of the Pennsylvania.

Unit First Aid Kits. A data sheet. National Safety Council, 425 North Michigan ave., Chicago 11. Single copies, 17 cents each; quantity discounts.

Unit first aid kits contain treatments and dressings packaged for one-time use to minimize waste and unsanitary conditions that may arise from half-empty bottles and half-used packages of gauze. They remain sanitary during periods of infrequent use and thus are suited for crews on mobile equipment, groups working in isolated areas, etc. The kits are available in four sizes. A 24-unit kit is generally considered adequate for 50 employees; ten- and 16-unit kits are satisfactory for smaller groups. The council's data sheet helps companies to select units of kits most suitable for different occupations, areas and conditions. It also contains a simplified accident and first aid report form, plus information on first aid training and inspection and control.

'53 Directory of Occupational Safety Posters. 72 pages. Includes many full-color reproductions. National Safety Council, 425 North Michigan ave., Chicago 11. Sample copies free.

Contains 756 miniature illustrations of posters available through the council. The posters are based on latest occupational statistics so proper emphasis can be placed on weakest spots. Many posters are for specific industries, although a wide selection of general themes are also available. The directory also contains advice to safety officers on how to choose and use posters effectively. The work is indexed for quick reference to any particular subject.

Profits—What Are They . . . Who Gets Them . . . Why? 8 pages. Economic Research Department, Chamber of Commerce of the United States, 1615 H st., N.W., Washington 6, D.C. Single copies, free; in bulk, $4.50 per hundred.

Net profits have been declining for many months. Is this a prelude to softer markets and harder-to-get jobs? What is the proper role of profits in a free society? What is their total? Per dollar of sales? How are they measured? Who gets them? Do profits raise or lower consumer prices? These and many other questions are raised and discussed in this leaflet. It is designed for distribution through pamphlet racks, as enclosures in payroll envelopes, etc.

WHICH POWER TYPE IS BEST FOR YOU?

...electric, gas, diesel or L.P. gas?

No two jobs are exactly alike, so there's no such thing as one "best" power type. Which type is best *for you*?—that's the important question. The only person who can give a really *unbiased* answer is one who knows them all, and knows where they fit.

That's your local CLARK Dealer. He carries electric, gas, diesel and L. P. gas units—and he's got no ax to grind for any one. His object is to provide the one that's best for you. For example, careful application analysis often proves that *electric* trucks are best for certain jobs because of these advantages:

★ Economical operation on low-cost electric power

★ Long life, less maintenance—electrics have fewer, simpler moving parts

★ Smooth, vibration-free handling of fragile loads, less wear on truck

★ Quiet, clean operation

Which power type is right for you? No matter what it is, you'll find it in the CLARK line of quality handling equipment. You'll always be right when you buy from CLARK.

1903 1953 FIFTY-FIRST YEAR CLARK EQUIPMENT

WHEN THE ANSWER IS *Electric* CLARK ELECTRICS ARE THE ANSWER ...Here's why:

1 Better battery efficiency—users report more work per amp-hour with CLARK.

2 Greater stability—safer for load, safer for operator.

3 Faster acceleration, greater speed—gets more work done, covers more ground.

4 Safer, smoother stops—with CLARK's positive-controlled, reverse torque braking.

5 "Application-engineered"—for special requirements, CLARK provides custom engineering.

CLARK ELECTRIC, GAS, DIESEL, L.P. GAS FORK TRUCKS AND POWERED HAND TRUCKS · INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK 24, MICHIGAN

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a Minute a Mile SAVED

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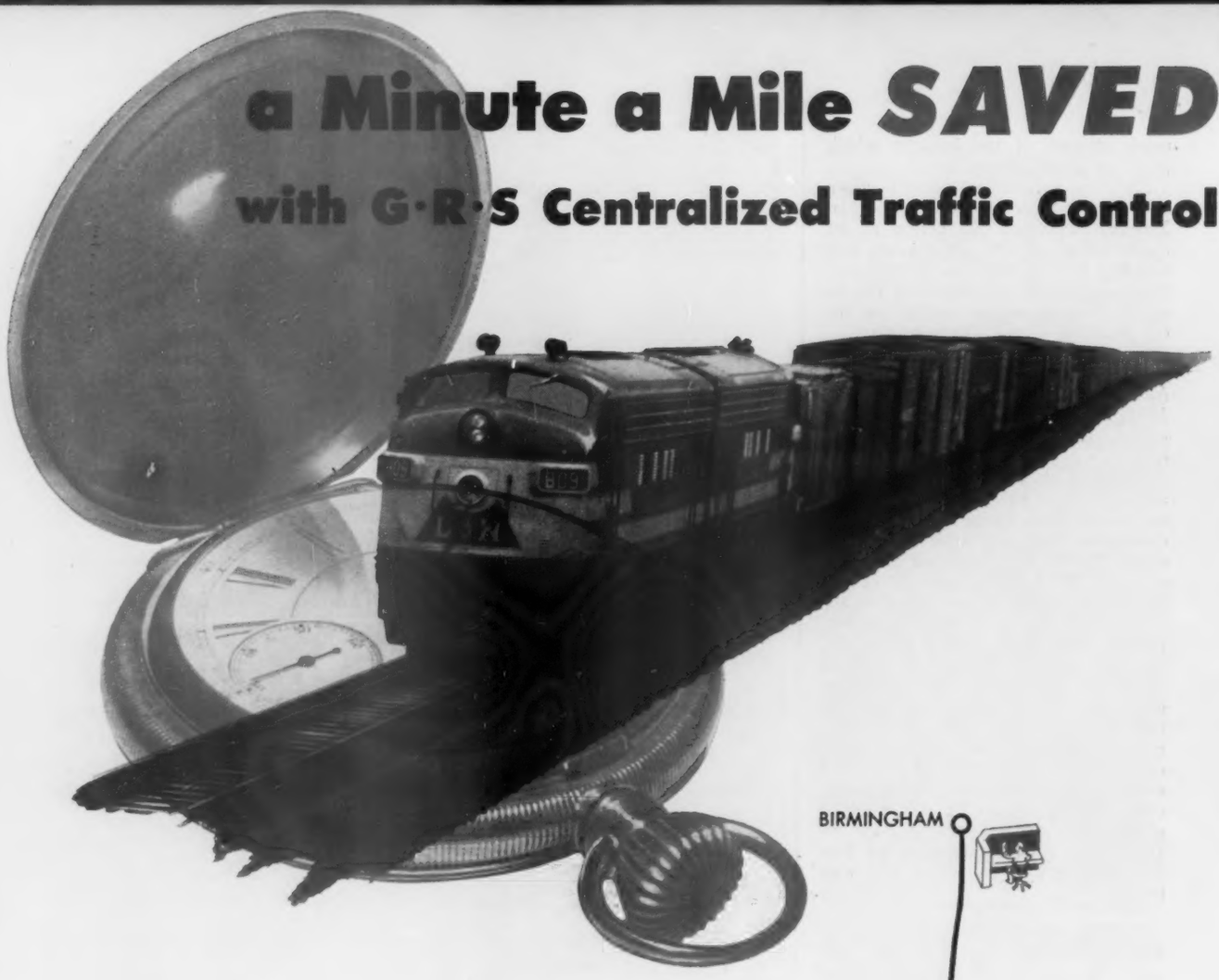

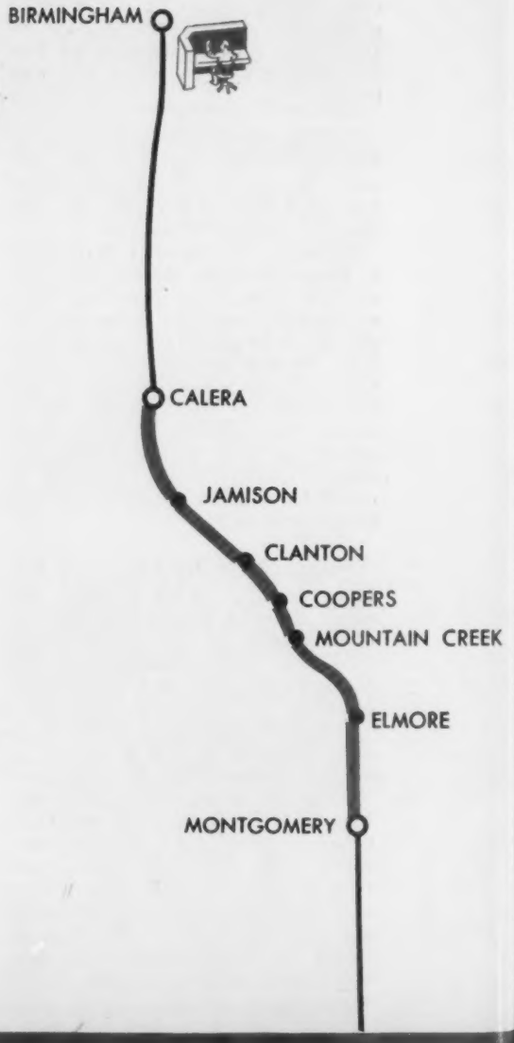

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- Control machine is at division headquarters.

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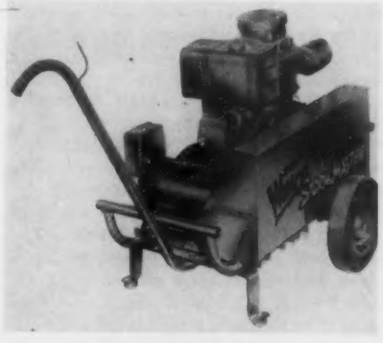
What's New in Products

Mercury Tractor Cab

The Mercury Manufacturing Company, Chicago 9, has announced a new cab for use with the company's Huskie and Super Huskie tractors. Designed to increase driver comfort for all outdoor work, the cab is priced, according to Mercury, at a "considerable reduction over other tractor cabs now on the market."

The cab is equipped with a one-piece shatterproof glass windshield and is made of 12-gage steel. It is available with or without removable side doors and rear panel, and there are a number of optional arrangements depending upon the type of outdoor service for which it is intended. These include: electric lights; electric windshield wiper; heater; defroster system; and directional turn-signal indicators. The cab can be supplied to customers for mounting on their own tractors•



Emergency Power Plant

The Winco Storm Master engine-generator, Model 3030-X (without engine), is the most recent addition to the line of engine-driven generators made by Wincharger Corporation, Sioux City 2, Iowa. The unit is low in cost, light in weight and has a 50 per cent overload capacity for motor starting.

The mounting base consists of four slotted channels arranged in sets of two at right angles to each other, making a transverse mounting system with infinite adjustment within the limits of the frame dimensions. Consequently, a large number of makes and models of engines can be accommodated.

Of recent model engines, some 25 representing 11 different makes can be readily mounted. The unit is sold with or without engine.

Generator output depends on the size of engine used. Engines of 7 to 8 hp. deliver rated output with reserve capacity up to 50 per cent overload for motor starting. Five-hp. engines deliver a normal output of 2,000 watts and 2½-hp. engines deliver 200 to 350 watts•

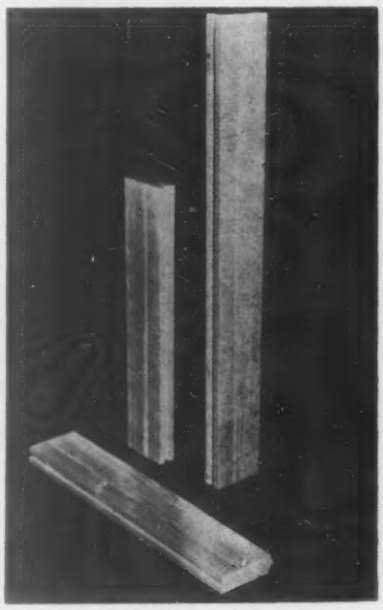
Vertical-Grain Car Decking

Vertical-grain car decking of Douglas fir, long in limited supply is now available in abundance through a manufacturing process developed by Wood Products Company, Portland 4, Ore. The material, known as Lamidek, consists of Douglas fir sawed into strips of 2-in. square sections, three of which are placed with the vertical grain face on top, laminated and dowelled together to form a floor board which is milled to make the tongue and groove.

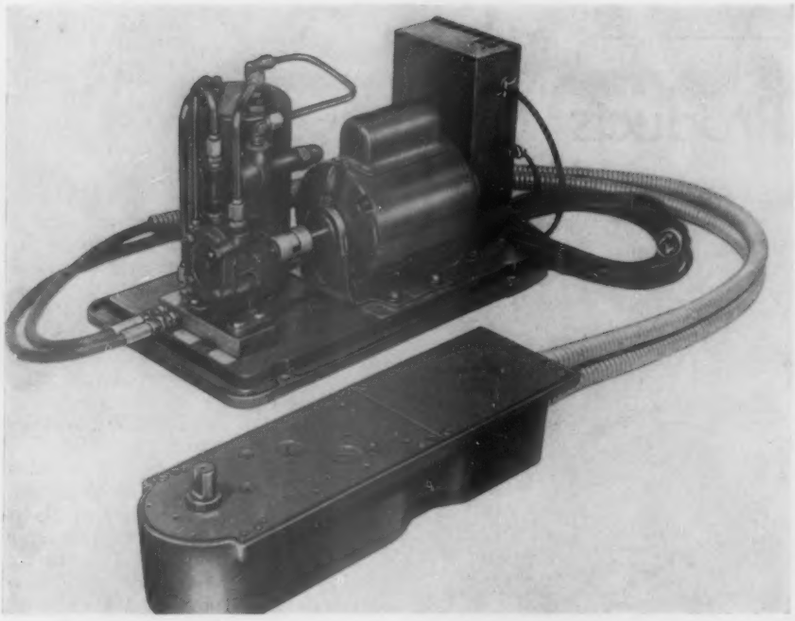
Vertical-grain car decking has become increasingly difficult to obtain, and higher in price, as plywood plants have taken more and more of the large logs, leaving only the small ones for the sawmills. The result is that decking for box, flat and gondola cars, for push cars, station platforms and warehouse floors largely has been flat-grain Douglas fir.

Flat-grain decking has a tendency to peel and splinter under wear, to shrink appreciably, to be fairly easily broken through by heavy material-handling trucks, and to require frequent repair and replacement.

The laminated, vertical-grain Lamidek, having a harder surface, is said to wear more evenly, resist splintering or peeling, and shrink less than flat-grain stock. It costs 35 per cent more than flat-grain decking, but experience records of twice the service life are reported, with resultant savings not only in materials but in the labor costs of renewal•



Lamidek vertical-grain car decking made of Douglas fir and said to have twice the service life of flat-grain decking.



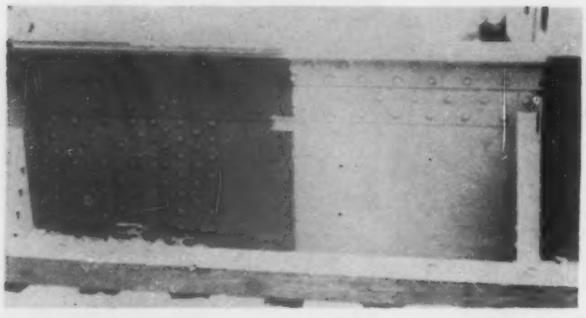
Automatic Door Control

Production of a newly designed, electrically operated hydraulic door control has been announced by the Dor-O-Matic Division of Republic Industries, Inc., Chicago 30.

The automatic "Invisible Dor-Man" is said to open any type of door the instant a person steps on the carpet leading through the doorway. The door remains open until the person has walked through and then closes with a two-speed action. The initial closing speed is greatly reduced during the last few inches of closing to assure completely noiseless operation. These speeds are adjustable at time of installation.

The appliance consists mainly of the door control mechanism concealed in the floor and the hydraulic power unit, equipped with a General Electric Form G ½-hp. motor. Because of the compactness and convenient size of the power unit, it can easily be hidden from view at any necessary distance from the door. Electric power only is required for its operation.

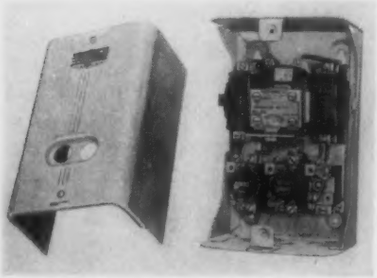
No alterations are required in applying the control to any standard stock door and no special devices are placed in the head jamb. The door will open away from the person who is entering. If someone happens to be standing on the opposite side of the doorway, the automatic control will not operate until pressure on that section of the carpet has been relieved. In case of power failure, the door will operate manually, without locking or jamming •



Bridge girder shown before removal of paint (left), and after treatment with Turco W. O. No. 1 and application of the primer (right).

Chemical Paint Stripper for Bridges

Development of a new procedure for chemically stripping paint from railroad bridges and preparing the surfaces for repainting has been announced by Turco Products, Inc., Los Angeles. Used in conjunction with chemical rust removers, the process is said to eliminate many common disadvantages of sandblasting, and is of particular importance at locations where sandblasting is not possible. The manufacturer claims that the new process cleans surfaces of old paint and removes rust—from under the old paint as well as in bare spots. One of two Turco spray-on phosphating materials, Turcoat 3420 or Turco W. O. No. 1, is employed in the process. Each of these materials is said to offer passivating action as well as cleaning action, etching the surfaces microscopically and depositing a light phosphate coating. This coating forms a bond between the metal and the paint to assure maximum adhesion of new paint coatings. Field use of the process employs a dual-purpose, high-pressure portable machine that generates up to 300 gal. of water per hour, heated to 180 deg. F., at 250 psi., when connected to any ordinary city water line•

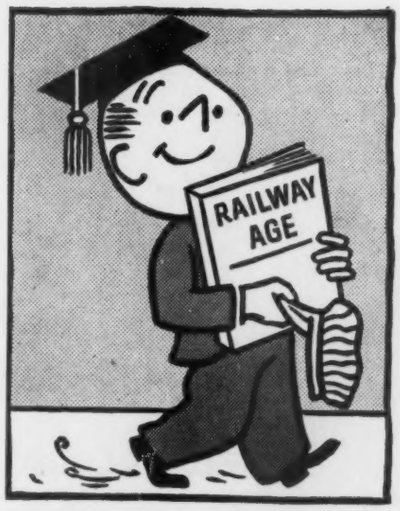


Magnetic Starters, Contactors and Relays

Announcement is made by Cutler-Hammer, Inc., Milwaukee 1, Wis., of a new line of magnetic starters, contactors and relays. The line incorporates a simple five-unit construction designed to install easier, work better, last longer. A wrap-around cover pulls off, fully exposing the front and both sides of the unit for 180 deg. accessibility. The five independent parts consist of two contact blocks, a magnet coil, an armature and a three-coil or two-coil overload relay mounted on a steel panel. Each part can be removed from the front without disturbing another part.

The units have a three-coil, adjustable overload relay permitting four ratings from each heater coil by changing its position. The three-coil overload offers protection against single phasing where unbalanced or unstable line conditions may occur.

The double-break contacts, made of a silver alloy, can be inspected by pulling off a snap-on cover. The contacts can be removed without tools. The complete contact block can be removed by loosening two screws; the overload relay by turning out two screws. The armature, which pivots on rolling bearings, and the magnet coil may be replaced without tools. The complete panel, with all units assembled, can be taken out of the metal case by loosening three screws. All terminals are angled to face front, and are equipped with solderless connectors. The cover and base are finished in grey enamel baked on bonderized metal. The unit illustrated is an N.E.M.A. size O starter•



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Benchmarks and Yardsticks

A STATION AGENT up in Northern New England has sent us some ideas on one of this corner's favorite subjects—the need for adequate textbooks for instruction in the best practices in the various branches of railroad work. This agent says the Germans have (or, at any rate, had) such books in great profusion; and that even the Russians have them. He says he has seen these books and, although unable to read the languages, he got a lot out of the pictures.

This agent further asserts that he'd certainly like to have such a book, in English, on freight traffic—but what he'd find even more helpful would be a periodic "traffic bulletin."

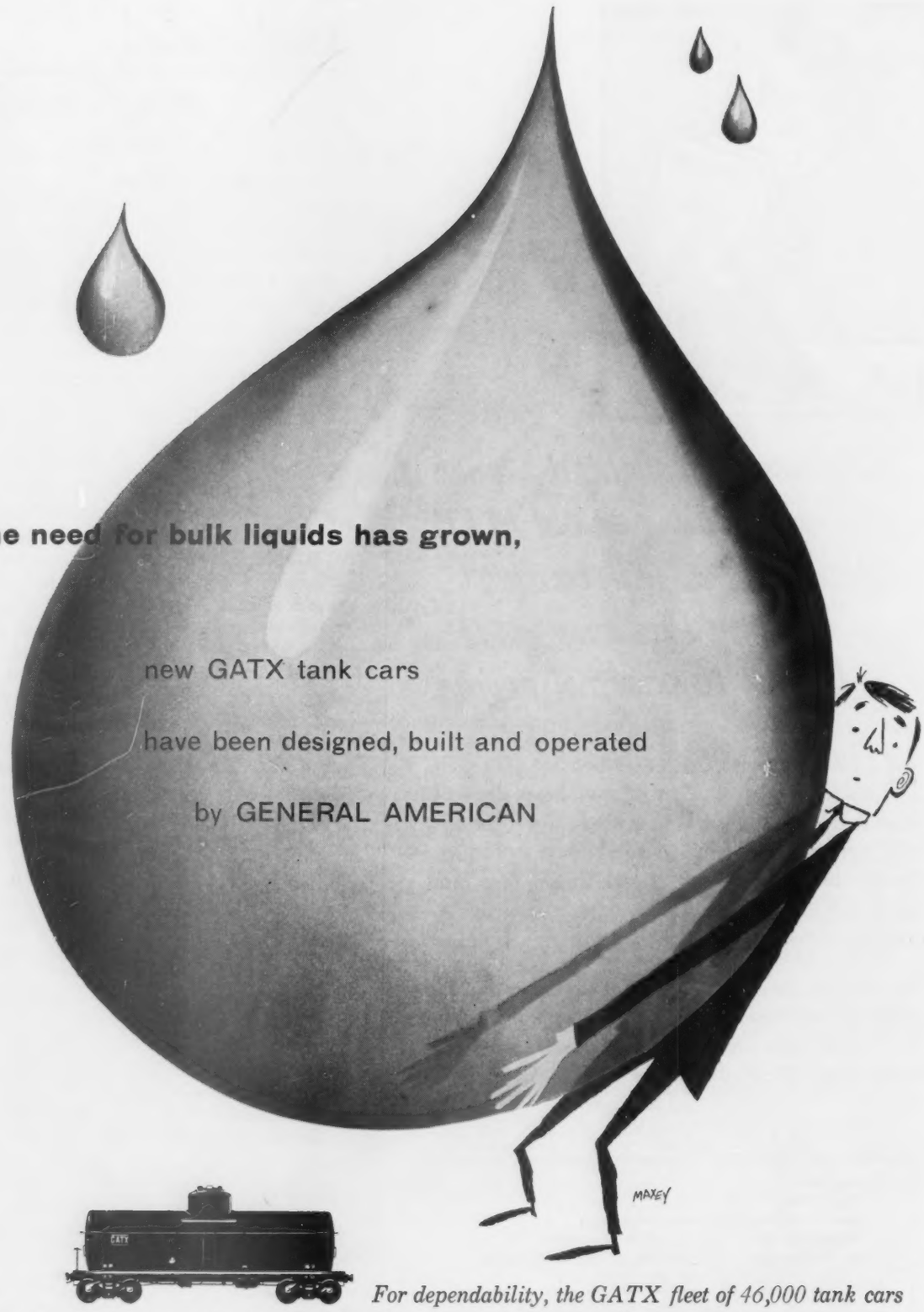
"Traffic changes continually," he goes on to say. "Wouldn't it be feasible to produce a traffic bulletin for a given railroad, or even for a railroad division, without prejudicial statements which would alienate other railroads? Lacking any organized help, most of us agents depend on the traveling freight agent who is, of course, more concerned with just his one railroad than the traffic welfare of the railroads as a whole. Particularly in l.c.l. there may be 30 ways to get from here to yonder but only one through car service. Keeping the agent in the one-man stations informed on such matters is certainly an educational job for his railroad."

This department sympathizes with this agent's desire for information, but is inclined to believe that the bulletin he wants, while highly desirable, would still not be a substitute for up-to-date textbooks, setting forth the best known practices for all kinds of jobs that the station agents and other employees have to do.

Such books, if they were to be provided, would doubtless have to be prepared under some official auspices, because no author could afford to write them for no more remuneration than his royalties as an author would produce. There are few men with sufficient managerial experience to enable them to write really authoritative books of the kind needed, whose time does not command $10,000 a year or more. Perhaps such men would not actually put words on paper, but would spend their time educating the actual writers in railroad practices. In that event, the problem of getting adequate authors' compensation would have to be multiplied by two.

There isn't any easy answer to this problem—but it certainly isn't any more forbidding a job than that of getting a good railroad history written, and many individual railroads have done that, although there is no book of similar quality which covers the history of the railroad industry as a whole.

J. G. L.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Meddling with Railroad Safety

It would be highly ironical if the present Republican government in Washington—dedicated, supposedly, to the deflation of overgrown bureaucracy—should start off its career in transportation legislation by putting on the statute books two such measures as S.1401 and S.539. These two bills (as outlined in our April 20 issue, page 12) are designed, respectively, to give the Interstate Commerce Commission comprehensive authority over the installation and use of power brakes; and to empower the commission to prescribe communication systems for the railroads and to exercise practically unlimited authority over operating rules.

What is the matter with the safety of train operation anyhow that should persuade Congress to take primary responsibility out of the experienced hands of railroad officers and lodge it with regulatory authorities who justly complain, already, that they have more work to do than they can satisfactorily perform with existing forces? The average annual fatalities (employees and passengers) in train accidents in the past 33 years have been as follows: 1920-24, 427; 1925-29, 332; 1930-34, 236; 1935-39, 266; 1940-44, 417; 1945-49, 299; 1950-52, 291. With allowance for depressed traffic in the thirties and the traffic upsurge during World War II, the record is one of steady improvement. In the 1930 decade the fatalities per million train-miles averaged 5.75. In the decade 1940-49, the ratio fell to 4.36. In the three most recent years, 1950-52, the average went down further to 3.39.

Interstate Commerce Commission interest is highly concentrated upon the spectacular sector of railroad safety—the part involving train accidents. In 1952 there were 210 fatalities and 1,005 non-fatal casualties occasioned by train accidents—whereas railroad fatalities from *all* causes totaled 2,926 and non-fatal injuries 29,986. Thus, train accidents accounted for only 7.2 per cent of fatalities and 3.3 per cent of the non-fatal injuries.

As conditions now stand, each railroad's management is responsible for the rules governing operation and power braking on its own trains. If these rules are inadequate, or are inadequately enforced, the result is a mounting accident record—and no management can shift the responsibility for a poor showing to any shoulders other than its own. Chief railway executives and directors have shown no demonstrable preference for operating officers and supervisors who have a poor record in safety performance. But suppose authority over brake performance and operating rules is taken away from railroad officers and lodged in the commission—these officers can then no longer be held responsible for the safety of trains, but only for obedience to the rules the commission prescribes. It takes little imagination to predict the probable result.

A Procrustean Remedy

Can the commission's agents in Washington be expected to be more skillful at directing detailed railroad operations than experienced railroad officers can be, right on the job? Uniformity—one rule to cover all cases, disregarding special treatment to conform to variations in local conditions—is always the temptation of centralized bureaucrats. Their formula is that of Procrustes—if the sleeper is too long for the bed, chop him down till he fits. It is said that a bird in the hand is worth two in the bush. What Congress is being asked to do in these two bills is to throw away a substantial safety bird already in hand in return for some unpredictable fraction of a bird that the I.C.C. hopes to be able to deliver.

This paper does not belittle the substantial contribution of the I.C.C. and its able and devoted staff to the cause of railroad safety. On the contrary, we believe there are several functions in connection with railroad safety that *should* be in I.C.C. hands, and a couple of these functions the commission is now performing very well indeed. These functions include (1) the compilation and policing of objective statistics of railway casualties and (2) the investigation and reporting of conditions bearing upon safety and upon the causes of specific accidents. Another I.C.C. responsibility having a controlling effect on railroad safety the commission has taken lightly—that is, of course, its duty so to regulate the railroads that they may have an opportunity to achieve attractive earnings, and thus always have available plenty of funds with which to purchase the most modern safety devices in desirable quantity.

If the present Congress wants to make a sub-

stantial contribution to increased safety on the railroads, it should in our opinion deny the I.C.C. the additional authority it seeks under these two pending bills. It could well go further and repeal the legislation it enacted in 1937, giving the I.C.C. authority to prescribe and supervise railroad signaling devices and systems—a matter in which it would be mighty hard indeed to prove the utility of government intervention (except, perhaps, from the standpoint of politics). Simultaneously, it should provide adequate staffs and pay adequate wages for the I.C.C.'s fact-finding and reporting functions in the field of railroad safety. Over and beyond such steps as these, the greatest contribution toward railroad safety that Congress could make would be to give a positive mandate to the commission to extend freedom to the railroads in rate-making (upward or downward) to a degree which would give them an opportunity to become as attractive earnings-wise to investors as the electric utilities and manufacturing industry are.

Given sufficient funds to work with, railroad managements will doubtless continue their steady record of improved safety—not alone in the spectacular area of train accidents which attracts all the political attention, but as regards the 92.8 per cent of fatalities and 96.7 per cent of injuries where accidents to trains are not involved. Regulators and legislators, seemingly, have only a limited degree of interest in the non-train-accident area of railroad safety, but railroad managements cannot, for that reason, forget these other casualties.

Managements have the moral duty to resist to the utmost the apparent political effort to concentrate disproportionate effort (and available funds) on what is, after all, only a minor segment of the overall safety problem.

Those Atlantic City Conventions

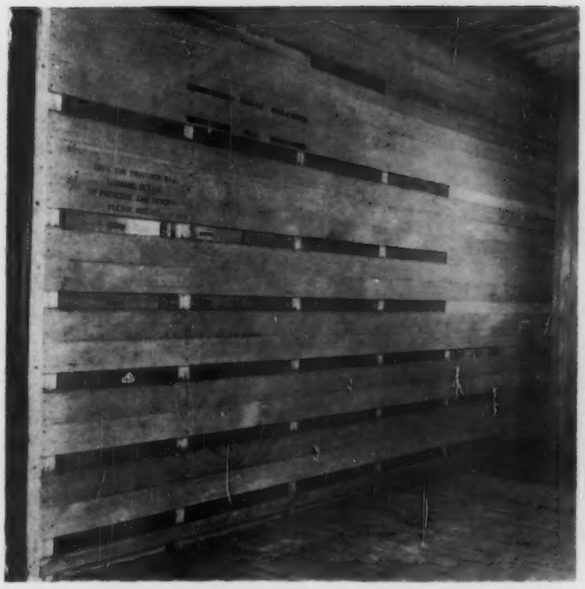
There seems little question that the railroad meetings scheduled for Atlantic City during the week beginning June 22 will, in combination, constitute the largest assembly in a long time of railroad men in responsible positions. In all, there will be six different meetings during the week—those of the Association of American Railroads and Short Line Association member roads; the Mechanical Division, A.A.R.; Purchases and Stores Division, A.A.R.; Electrical Section, A.A.R.; and the VIII Pan American Railway Congress.

The primary reason why these meetings are set for Atlantic City at this time is, of course, the large exhibition of railway equipment and materials which has been arranged by the Railway Supply Manufacturers' Association at Atlantic City's convention hall. The old timers will remember that these Atlantic City conventions of the Mechanical and Purchases and Stores Divisions, complete with the R.S.M.A.'s exhibition, used to be held every year. Then, during the twenties, the interval was lengthened to every other year—the reason being the increasing costs of exhibitions of this kind.

When the great depression of the 1930's came along, the Atlantic City sessions were suspended for several years. One was held in 1937, and then the war intervened and no Atlantic City meeting was held again until 1947, and none has been held since. The attendance at the 1947 convention and exhibition, while by no means disastrous, was not satisfactory. It just costs too much money to get all these exhibits together, unless the exhibitors are going to be repaid by getting "exposure" of their products to a substantial number of potential purchasers. From the standpoint of the railroads, there is real economy in getting together in one place the bulk of the equipment and materials they use—so that as much information as is available on new developments can be absorbed by interested officers in a couple of days.

Realizing the advantage to the railroad industry of a large-scale equipment show, if well attended and not too frequent, President William T. Faricy of the A.A.R., following the 1947 convention, made known his intention—if such an exhibition were ever arranged again—to endeavor to schedule an A.A.R. member road meeting at that time. This, of course, he has done for the forthcoming June meeting—and the American Short Line Railroad Association has done the same. Also, largely through Mr. Faricy's good offices, the VIII Pan American Railway Congress will also convene in Atlantic City at this same time.

The exhibitors are happy at the prospect of substantial attendance by higher officers, as well as by the mechanical, electrical and purchases and stores people. They are particularly interested in these departmental officers, as the actual users and specifiers of their products. Top railway management—to the extent that it understands the kind of attendance which is required to justify economically an exhibition of this kind at reasonable intervals—will doubtless extend the degree of cooperation needed to bring about large attendance, not only by the "tops," but by the middle and lower echelons of railroad management.



IMPROVED EQUIPMENT is being introduced by many railroads, such as this "economy-safe-load" car with wall inserts for receiving steel strapping in use on the Erie, as a means of reducing damage claims.

MORE CONTAINERS are being developed and used by all roads handling l.c.l. traffic. This device specifically for transporting gas cylinders is but one of several special-purpose containers designed by the Northern Pacific.

Loss & Damage Can Be Reduced

New techniques and ideas score in railroads' and cooperating shippers' constant vigilance against needless waste—Number of claims declining but dollar value increases *(Story on next page)*

PROPER PRACTICES in the loading and bracing of shipments are being taught station employees and shippers alike. They are also being taught the proper use of bulkheads and of other stowing and bracing methods.

MORE INSTRUCTION in the use of proper containers and loading techniques is another means to improve the way shipments are packaged and loaded. Outstanding is the school conducted by the A.A.R. at Chicago.

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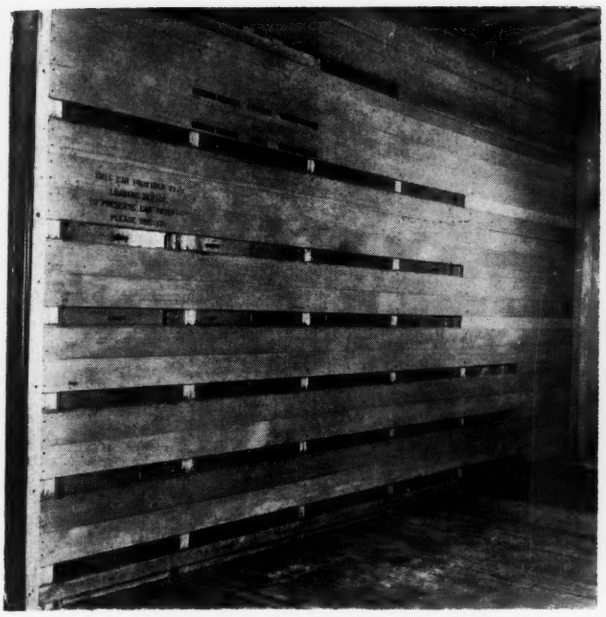

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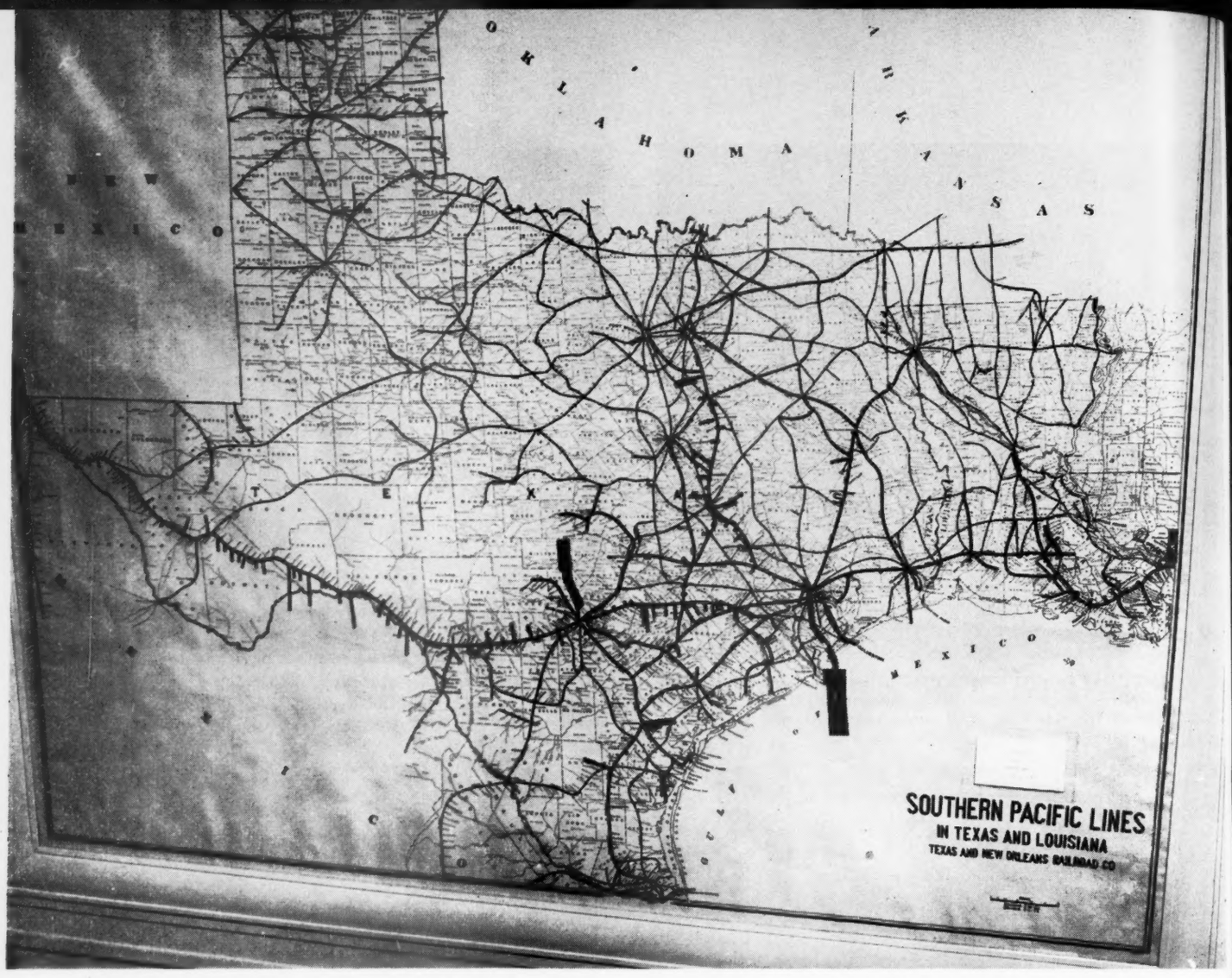


RECORDED IMPACTS are shown on this map of the Texas and Louisiana Lines of the Southern Pacific as a means of disclosing the "trouble spots" where impacts are recorded most often. Each recorded impact is indicated by a colored thumb tack. The map is in the freight protection, merchandise and station service department.

That loss and damage prevention efforts are producing results is evidenced by the 5.3 per cent decline in the number of new claims filed in 1952 as compared with 1951. This continues the general downward trend which has been in evidence for the past four years. However, although the *number* of claims filed decreased, the total *cost* of these claims increased 8.5 per cent—primarily due to the delayed effects of inflation and general increases in prices. The average claim paid increased from $26.67 in 1951 to $29.93 in 1952. These figures, prepared by the Freight Loss and Damage Prevention Section of the Association of American Railroads, highlight the need for continuing attention in order to reduce the dollar outgo, and the fact that diligent preventive efforts can and will produce results.

Constant Vigilance

Recognizing that the basic problem is primarily one of maintaining constant vigilance, the entire industry is giving increasing attention to developing improved means for stimulating and maintaining employee interest and participation in the maintenance of a higher degree of alertness and performance in the course of their daily routine duties.

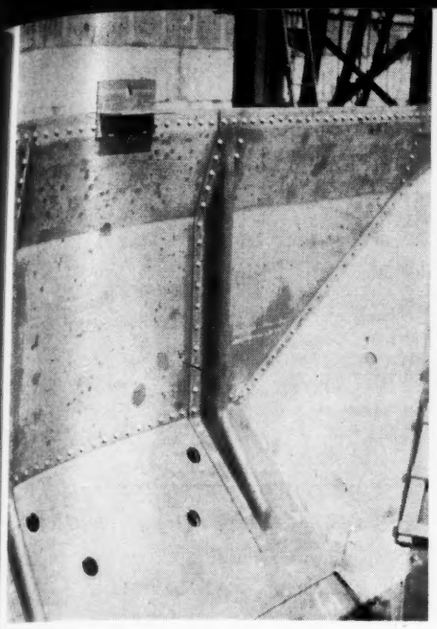
Because of varying local conditions, different railroads have approached the problem from different angles. Increased recognition of the need for constant and sustained preventive efforts is shown by the growing number of railroads which have implemented their preventive work by separating it from claim work and responsibility.

28-Railroad Survey

A recent 28-railroad survey by *Railway Freight Traffic* disclosed that the subject is receiving an increasing amount of year-'round attention. Some of the more interesting methods used to stimulate and maintain continuing employee interest are pictured here.

The Pacific Lines of the Southern Pacific seek to build employee interest by an annual contest for the best loss and damage prevention slogan. The winning slogan is prepared in poster form and widely distributed over the system.

An employee contest, with 113 cash prizes totaling $7,500, is being used by the Atchison, Topeka & Santa Fe this year to stimulate employee thinking in connection with the prevention of loss and damage. The prizes are offered for the best ideas and suggestions on "How to Prevent Loss and Damage to Santa Fe Freight."



TO THAW frozen ore, steam jets are inserted through the holes in the hopper slope sheets.

ONE OF 500 70-ton ore cars built by Greenville Steel Car Company for the Bessemer & Lake Erie. The coupled length is 27 ft. 2 in.

New Bessemer Ore Cars Are Short

Built by Greenville, they require nearly 50 per cent less track space than conventional 70-ton cars—Doors on the deep hopper open outward

A new ore car, of which 500 were recently placed in service by the Bessemer & Lake Erie, includes refinements in design and construction that assure nearly 50 per cent saving in yard-track space over conventional 70-ton and 90-ton hopper cars, allow bottom unloading through a trestle, provide easy handling in a car dumper, and facilitate ore thawing.

Greenville Steel Car Company, subsidiary of Pittsburgh Forgings Company, built these 70-ton all-steel ore cars for the Bessemer & Lake Erie at its Greenville, Pa., plant. The cars, basically a design of the Missabe standard ore car used in short-route service, are now engaged in long-haul main-line transportation of iron ore and limestone.

A feature of the new car is the bottom door opening. The doors are hinged at the side sill to open outward and downward in order to place the lading directly between the rails. Apron plates prevent the ore spilling over the ends of the doors. These hopper doors clear the rail when open, and close together at the center line of the car. The door mechanism is operated with a 4-to-1 ratio. A pinion in the mechanism allows one man to open or close the doors safely from either side of the car. Safety is assured by clutch collars that form a "lost-motion" device by which the operator creates his own safety factor before tripping the load.

The bottom or floor sheets are placed so as to provide a 50-deg. slope, 20 deg. steeper than the floors of ordinary hopper cars, which insures that the lading will flow out when the doors are opened. Of course the weather and the condition of the ore—whether it is wet or dry—will influence the rate of flow. During freezing weather pipes are inserted into the frozen ore through holes in the slope sheets and live steam is turned into the frozen mass to thaw it for dumping.

The top side construction of the ore cars was designed to provide the same height above the rail as other B&LE cars. This has facilitated handling them in car dumpers because there is a good surface for dumper clamps, and it strengthens the cars against shakeout damage.

Since each new ore car is only 27 ft. 2 in. long when coupled, a train of 100 such cars will occupy only 2,717 ft. of track space, as contrasted to 4,417 ft. required for a train of 100 all-purpose 70-ton hoppers. This short-coupled car is an advantage especially in steel-mill yards where track space is limited. Each car has a capacity of 1,096 cu.ft., level full. This is 96 cu.ft. extra capacity, or 6 to 7 additional net tons each trip, over the rating of the Duluth, Missabe & Iron Range cars which were the prototype for the Greenville 500-car order.

The cars are equipped with Westinghouse automatic empty-and-load air brakes with load-compensating cylinders and automatic brake-slack adjusters. Bottom-operated couplers and rotary uncoupling levers suspended below the end sills are also used.

Successful operation and economies have been effected by the 500 ore cars. The B&LE has placed an additional order with the Greenville Steel Car Company for cars to be delivered in August 1953.

Principal Dimensions and Characteristics of the Bessemer & Lake Erie Ore Cars

Length inside body at top, ft.-in.	20-9
Length over coupler striking plate, ft.-in.	24-8
Length coupled in train, ft.-in.	27-2
Width outside, ft.-in.	10-6
Height from rail to top of car, ft.-in.	10-8
Capacity level full, cu. ft.	1,096
Nominal capacity, lb.	140,000
Load limit, lb.	166,000
Light weight, lb.	44,000
Slope of floor, deg.	50

What Are the Causes of Hot Boxes?

M. A. Pinney, the Pennsylvania's engineer of tests, tells Eastern Car Foremen of investigations made by test department of Pennsylvania in seeking answers to this urgently important question

While the materials employed for the lubrication of freight-car journals are capable of being improved, they are not the major cause of hot boxes. With proper servicing these materials are such that hot boxes can be materially reduced. These conclusions resulted from investigations made on the Pennsylvania, which were described by M. A. Pinney, that road's engineer of tests, in an address at the March meeting of the Eastern Car Foreman's Association at New York.

Mr. Pinney made it clear that he did not appear as a representative of the Pennsylvania, but was presenting his personal conclusions based on the results of studies and tests conducted in the test department of the Pennsylvania in connection with the lubrication of freight cars. Somewhat condensed, Mr. Pinney's remarks follow.

There can be no doubt that the railroads of the United States have a real problem on their hands in their efforts to reduce the excessive number of hot boxes being experienced. It is a problem which receives the attention of all railroad executives from the president down and which certainly is foremost in the minds of motive-power department officers.

What is the situation with regard to hot boxes? Their frequency month to month? On what equipment do they occur most frequently? What is the effect of diesel operation? These and many other questions present themselves and need to be answered in order to approach the problem intelligently.

A chart (page 56) shows the ratio of train speed and hot boxes on the Pennsylvania. Starting with 1939 there was until 1943 a steady drop in train speed as represented by train-miles per train-hour. This has been followed by an increase in speeds, due largely, I believe, to the benefits derived from diesel operation. Generally, when the train-miles per train-hour average is down miles per hot box are up and when train-miles per train-hour are up miles per hot box are down. I do not expect any relief in the future from a reduction in train-miles per train-hour—we are going to have to learn to operate at the higher speeds without hot boxes.

Also shown is freight-car hot box data accumulated by the Association of American Railroads in which the monthly national average miles per hot box for cars set off between division terminals has been plotted against the applicable month. This curve is interesting in that while it is based on the national average its general form is applicable to almost any railroad in the nation. The car miles per set-off may (and do) vary for individual roads but the general shape of the curve remains essentially the same. A valley—i.e., low miles per hot box—occurs during the summer months and a peak or high miles per hot box in the fall and spring with an elevated valley between, indicating some difficulty associated with cold-weather operation. On the Pennsylvania we have operated some winters without this winter valley in the curve; on the other hand, there are just about as many winters during which this valley appears.

This curve illustrates that generally the hot-box problem is seasonal, occurring in one form during the summer months and in a different form in the winter months. The curve shows, however, that the summer troubles are the ones requiring the most attention. I am not too sure, however, that we understand the problem thoroughly as it presents itself in either summer or winter, but certain tests and studies have been made which I shall describe, along with my interpretation of results.

For some time prior to 1950, we had suspected that our system 70-ton cars contributed more than their proportionate share of hot boxes. A survey of hot boxes on system cars to divide them between 70-ton cars and others though somewhat time-consuming was, of course, not difficult.

A review of hot boxes occurring on the Pennsylvania

CAUSES OF HOT BOXES ON 70-TON PENNSYLVANIA SYSTEM CARS

	March 1951		July 1951	
Total number of hot boxes	401		1,103	
Number of cars having hot boxes	386		1,057	
Cause of hot box	Number	Per Cent	Number	Per Cent
Evidence destroyed	219	54.61	694	62.92
Waste grab	62	15.46	134	12.15
Low packing	62	15.46	114	10.34
Packing rolled or out of place	10	2.49	55	4.99
Broken or loose lining	21	5.24	40	3.63
Worn-out bearings	10	2.49	20	1.81
Dry packing	....	....	10	0.91
Bearing out of place	4	1.00	6	0.54
Leaking box	1	0.25	5	0.45
Wedge out of place	4	1.00	3	0.27
Low oil	4	1.00	2	0.18
Canted truck bolster	....	....	2	0.18
Sand in box	....	....	2	0.18
Cut journal	....	....	2	0.18
Rough journal	....	....	1	0.09
Dirty packing	....	....	1	0.09
Wire between journal and bearing	....	....	1	0.09
Rusty, pitted journal	1	0.25	1	0.09
Broken bearing	2	0.50	....	....
Water in box	1	0.25	....	....
Defective bearing	....	....	1	0.09
Unknown	....	....	9	0.82

When train-miles per train-hour are up, car-miles per hot box are down * * * We are going to have to operate at higher speeds without hot boxes.

during July 1950 showed that out of a total of 1,259 hot boxes on system cars 843, or 67 per cent, were on 70-ton capacity cars. For November 1950, the total of hot boxes on system cars was 378, of which 238, or 63 per cent, were on 70-ton cars. A record was also obtained of the movement of cars through Altoona yard for the 24-hour period of November 19, 1950, on which date we experienced our heaviest movement during that month. A total of 6,386 cars were handled, of which 1,948 were system cars. These 1,948 cars were checked by number against the equipment register to determine the class of car. Of the 1,948 system cars, 799, or 41 per cent, were of 70-ton capacity. From this study we concluded that our 70-ton system cars, which constitute approximately 38 per cent of our freight-car ownership and 41 per cent of our system cars moving over the road, account for about 65 per cent of the hot boxes occurring on system cars.

Looking for Trouble Spots

In order to correct a trouble one must first know what the trouble is. In order to learn what troubles needed to be corrected on our 70-ton cars a form was prepared and distributed to the various car foremen with instructions to fill in the form and forward it to the engineer of tests for every system 70-ton car which experienced a hot box during the months of March and July 1951. These reports were tabulated and studied and the following conclusions (in part) were reached:

- **Approximately 65 per cent of the hot boxes on 70-ton cars occurred on Class H-21 and H-25 hopper cars. These two classes of cars represent only 58 per cent of the total number of 70-ton cars in service during March and July 1951.** This provided a further clue as to where to concentrate efforts to reduce hot boxes.
- **Approximately 55 per cent of the hot boxes occurred during the first six months of service following repack.** From this it appeared that more frequent repacking would hurt rather than improve the situation.
- **Of all the hot boxes, 59 per cent occurred on the inside pairs of wheels.** An analysis of the effect of inertia forces acting on the car body and trucks when speed is checked by force applied at the drawbar indicates that considerable displacement of waste and bearings may take place in the journal boxes of the inside axle of the rear truck, setting up a waste grab which can ultimately produce a hot box.

The hot-box problem is seasonal. Summer troubles are the ones requiring the most attention.

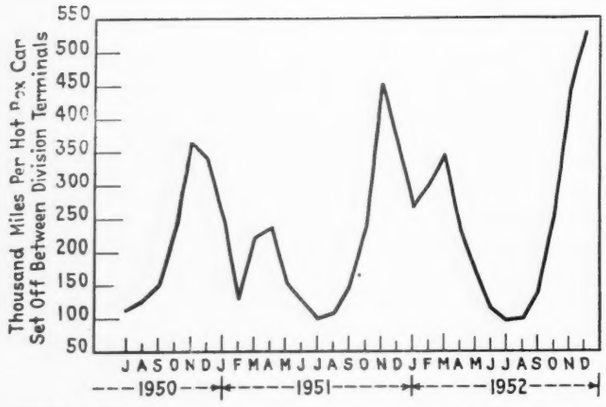
- **In a majority of the cases reported the cause of the hot box could not be determined as all evidence was destroyed. In 45 per cent of the cases reported in March and 36 per cent of the cases reported during July, however, sufficient evidence did remain to assign a cause. Considering these cases as 100 per cent, during March 69 per cent and during July 61 per cent of the hot boxes resulted from waste grabs or low packing.** Hot boxes from these two causes can be materially reduced by improved servicing of boxes at originating and intermediate terminals. The table shows in detail the causes of hot boxes as developed by this survey.
- **Approximately 72 per cent of the hot boxes occurred with pressed-steel boxes while only about 64 per cent of our 6 in. by 11 in. boxes were pressed steel.** A program is now underway to replace pressed steel boxes with cast steel or malleable iron boxes.
- **At the time of this survey approximately 57 per cent of our freight cars were equipped with spring packing retainers** and it was assumed that roughly 57 per cent of the 70-ton cars were so equipped. **The survey showed that 53 per cent of the hot boxes occurred on boxes equipped with retainers** and from this I concluded that, at least during warmer weather, packing retainers were not effecting a pronounced reduction in hot boxes.

No answer was found to why some oils apparently roll packing and others do not. Generally the more highly refined oils, having lower pour points and lower viscosities at subzero temperatures, had the least tendency to roll the packing.

- **Approximately 90 per cent of the hot boxes reported were on loaded cars, the balance being on empty cars. About 4 per cent occurred on cars definitely known to be overloaded.** For the year 1951, approximately 33 per cent of our freight-car miles in freight trains was empty mileage. From that I conclude that loading is a factor in hot boxes and as 70-ton cars are usually loaded nearer capacity this may in part account for the 70-ton cars contributing more than their proportionate share of hot boxes.

One of the first studies we started was an attempt to evaluate the various car journal oils to A.A.R. Specification E-M-906-50, concerning their tendency to roll or displace packing in cold weather. These tests were made in our car journal test machine at Altoona and consisted of packing a box with our standard renovated waste saturated in the test oil. A hot run was then made to assure that the box operated normally, following which it was packed on the exterior with dry ice to reduce the temperature of the waste pack to 10 deg. to 20 deg. F. below the pour point of the test oil. When this temperature was reached, several starts were made in succession to determine whether the test oil would roll the waste pack.

We could find no pattern and still have no answer to offer as to why some oils apparently roll packing and

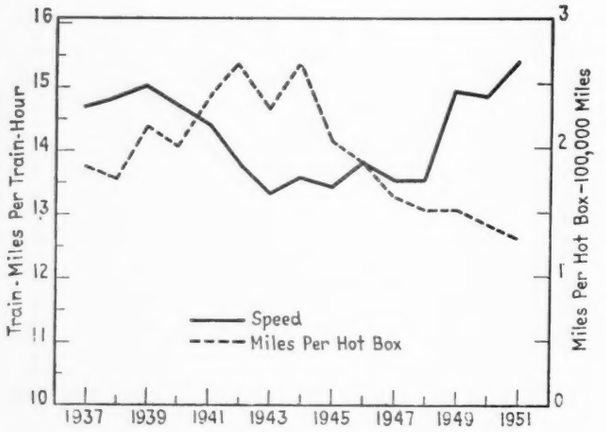


HOW THE MILES per car set out because of a hot box varies with the seasons.

others do not. Generally, it was established that the more highly refined oils rolled packing the least and apparently these highly refined oils, having the lower pour points and lower viscosities at sub-zero temperatures, had the least tendency to roll packing. This work was stopped when it was decided to use throughout the entire system an oil with a 40 to 42 second viscosity at 210 deg. F. in order to evaluate the performance of such an oil. There was some question in our minds regarding its ability to give satisfactory performance in hot weather but the theory of applying additives to the oil to provide adequate film strength for hot weather operation appeared logical so it was agreed to give it a trial.

Results to date indicate this light oil to be superior for winter operation. During the winter of 1951-52, the light oil was in general use but not for sufficient time to say that all system cars packed on line were packed and free oiled with it. I think it is safe to say that during the winter of 1952-53, all cars packed on line and all cars receiving free oil were lubricated with the light oil. The car-miles per hot box set-off for January of the current and past two years show some measure of the performance of this light oil in cold weather. These car miles per hot box are:

January 1951	154,965
January 1952	246,410
January 1953	303,663



THE RELATION of freight-train speed and hot-box performance over a period of 15 years on the Class I railroads.

We have operated with the light oil through only one summer season to date, that is, the summer of 1952. The hot-box performance last summer was poorer than the previous summer. However, due to decrease in business and the steel strike, our oiler organization last summer was considerably upset by displacement of regular oilers and I have taken the position that under such conditions it was impossible properly to evaluate the performance of this oil.

We are today buying waste for journal box packing which is superior in quality to that required by A.A.R. specifications and paying a premium price for it. Waste manufacturers were required to submit samples of the highest grade waste they can consistently furnish and those meeting our high standards were approved for purchase.

Journal Box Lubricators

We have tested a number of car journal lubricators on our bearing test machine. One lubricator, the Hennessy, is applied to some freight cars for a road service test. Generally speaking, our tests of these lubricators have shown that most lubricators can satisfactorily lubricate the journals with a full supply of free oil in the box. Most lubricators operate satisfactorily down to a minimum free oil level in the box but then fail to provide lubrication. I do not recommend the application of any lubricators without the concurrent application of oil-tight seals at both the box lid and the dust guard. We are currently engaged in testing several seals in the laboratory and it is hoped that some acceptable seals will present themselves during these tests.

To my knowledge, no lubricators have yet operated for sufficient mileage in normal road service to demonstrate ability to stand up in service.

The Journal Bearing

During 1948, complaint was made that in passenger cars an excessive number of bearings were being found with loose linings and replaced. In a survey, 64 per cent of the bearings examined at random on cars in service were found with loose linings. A research program was initiated in which pilot lots of bearings were manufactured in our works using various fluxes and tinning compounds to bond the lining to the back.

As a result of this research program we standardized on the use of zinc ammonium chloride as a flux and pure tin as the tinning metal. After these materials had been in use for about two years, we repeated in 1951 the survey that had been made in 1948 and found that the loose linings on cars in service examined at random was only 7 per cent. Since our bearings for freight cars are manufactured by the same process and methods as passenger-car bearings, it is reasonable to assume that a corresponding reduction has been made in loose linings on bearings of our manufacture in freight cars.

An idea as to the extent of the benefits gained from the increased zinc content included in A.A.R. Specification M-501 for bronze backs effective January 1. 1953. can be formed from the following comparison of bond strength tests made in our laboratory with the old standard bronze and the new higher zinc content bronze.

Based on the bond strength of the old standard bronze at room temperature as 100 per cent, the comparison is:

	Per cent
Old standard bronze at room temperature	100
High-zinc bronze at room temperature	127
Old standard bronze after heating to 200 deg. F.	90
High-zinc bronze after heating to 200 deg. F.	113
Old standard bronze after heating to 300 deg. F.	54
High-zinc bronze after heating to 300 deg. F.	87

The bond strength of the high zinc bearing is about 60 per cent higher than the old standard bronze bearing.

Packing Retainers

No discussion of hot boxes would be complete without something about packing retainers and containers. While the decision to use spring wire retainers in boxes of our system freight cars was made prior to tests made in our laboratory, nevertheless the laboratory tests indicated that wire retainers should provide some benefits in preventing waste displacements. Our survey into the cause of hot boxes on system 70-ton cars, however, did not show that cars equipped with spring retainers were much, if any, better performers, hot-box-wise, than cars without retainers, at least insofar as other than winter operation is concerned. I believe this is due to two major causes:

1. Oilers will not remove the retainer in order to set up the packing properly when necessary, with the result that they either pass up the box or do an inadequate job. Result: a hot box. This is a job which supervision must police if the inherent benefits of the retainer are to be realized.

2. In separable boxes having a box bolt pocket running vertically up the box on either side of the journal, there is inadequate clearance for the retainer with the result that under impact conditions the retainer is pinched between the journal and the side of the box, nicking the journal or end collar. The A.A.R. interchange rules now contain a note prohibiting the use of retainers in such separable boxes. It is expected, however, that the A.A.R. Lubrication Committee will soon approve a new design of short retainer for use in this type box.

Checks during the winter weather of boxes equipped with retainers and without retainers, on the other hand, have definitely indicated the spring retainer is of benefit in reducing displacement of packing in cold weather.

The Plypak packing container was also subjected to extensive laboratory tests under which it demonstrated that it should produce considerable benefits in reducing hot boxes. Based on these laboratory tests, 3,000 70-ton hopper cars have been equipped with Plypaks. Experience to date has justified our confidence in the ability of this device to reduce hot boxes. From April 1952 through January 1953 the average percentage of our 70-ton hopper cars equipped with Plypaks has been 2.94, yet these cars have accounted for only 0.77 per cent of the hot boxes on 70-ton hopper cars. In other words, in the same service, cars without Plypaks account for approximately four times as many hot boxes per car as do cars equipped with Plypaks.

While most of our work has to do with materials and methods, we do, on occasion, conduct investigations into the performance of labor in using the materials and methods developed. One such test had to do with developing the cause of an excessive number of hot boxes on one freight train couplet.

For a two-week period prior to our investigation a record was taken of the hot boxes experienced. There were 10 hot boxes on Train VL2 and 9 hot boxes on Train VL7, total 19. On the first day of the investigation our inspectors only observed the practices being followed by the oilers. On this day, August 7, Train VL2 had two hot boxes and Train VL7 had one hot box, total three. Our inspectors then insisted that attention as required by our lubrication instructions be given each car operating in these two trains. During the thirteen-day period, August 8 through August 20, Train VL2 had one hot box and Train VL7 had one hot box, total two.

The 19 hot boxes experienced during the two-week period immediately preceding the test period caused a total detention of 393 minutes. During the first day of test period, the three hot boxes caused a total detension of 50 minutes, while during the balance of the test period (13 days) the two hot boxes caused a total detention of 37 minutes.

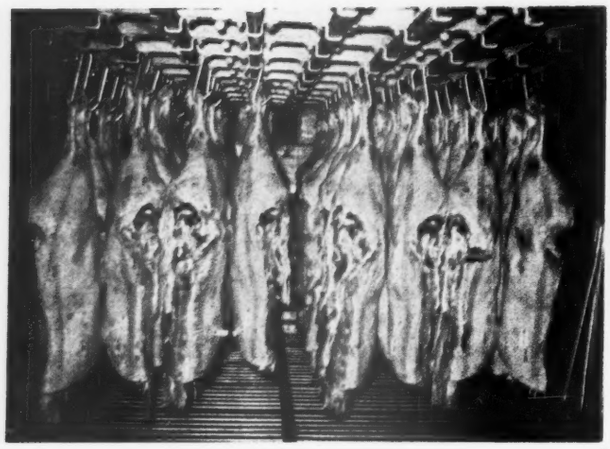
An excessive number of hot boxes is largely due to lack of—or hurried and improper—servicing of journal boxes, to inexperienced men assigned to oil and reset packing and, sometimes, to too much packing.

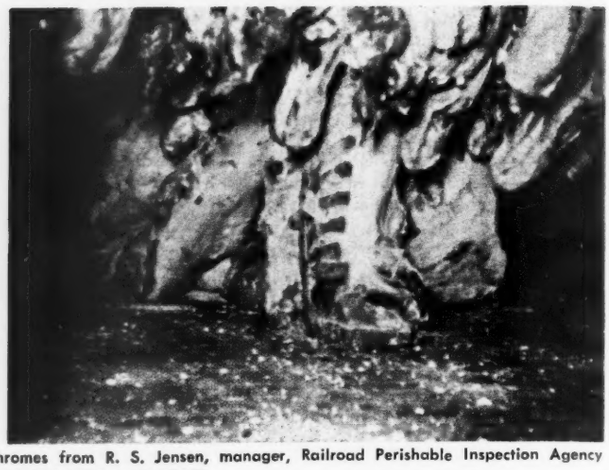
In other words, in the 15 days during which inspectors exercised no supervision over the lubrication work being done on these two trains, there were a total of 22 detentions, averaging 30 minutes per day, while during the 13 days during which supervision was exercised there were a total of two detentions averaging three minutes per day. Quoted from the report of this investigation are the following conclusions:

"1. The excessive number of hot boxes on these trains, and probably other freight trains, is largely due to, (a) not servicing or hurried and improper servicing of journal boxes; (b) lack of experienced men assigned to oil and reset packing and check waste grabs; and (c) too much packing in a number of boxes (mostly in foreign cars) and packing rolled up to the bearing on the rising side and out beyond the collar in boxes without packing retainers.

"2. The materials currently being used, while capable of being improved, are not the major cause of hot boxes, and with proper servicing they are such that hot boxes can be materially reduced."

I have experienced nothing since the date of this investigation which leads me to believe we were wrong in our Conclusion 2. I am convinced that car foremen have it within their power to do more toward reducing hot boxes than any other group of men on the railroads. Management is spending millions of dollars in programs to improve oil and waste, improve truck maintenance, replace worn out pressed-steel with cast-steel boxes, apply modern trucks, apply packing retainers and containers, and to test and investigate and research new materials and methods—but they will all be to little avail unless car foremen see that the efficiency of the labor utilizing these materials and methods is raised to a high level.





Kodachromes from R. S. Jensen, manager, Railroad Perishable Inspection Agency

SMOOTH RIDE: Beef is hung in a refrigerator car so it will reach the dealer in prime condition.

ROUGH RIDE: Torn and bruised beef, a result of excessive vertical motion and rough handling.

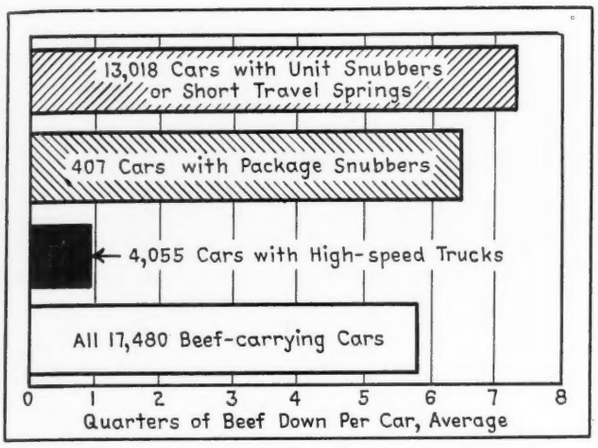
WITH HIGH-SPEED TRUCKS . . .

Dressed-Beef Damage Reduced

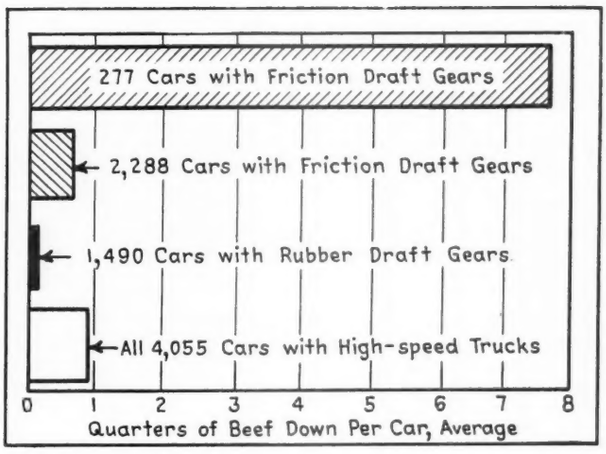
Quarters down in cars so equipped during 18 months were less than one per car—Rubber draft gears further reduce average to one quarter down per each six cars in tests by A.A.R. committee

Photo from General American Transportation Corporation

ONE OF THE ARMOUR & CO. refrigerator cars equipped with high-speed trucks and rubber draft gears.


13,018 Cars with Unit Snubbers or Short Travel Springs
407 Cars with Package Snubbers
4,055 Cars with High-speed Trucks
All 17,480 Beef-carrying Cars
0 1 2 3 4 5 6 7 8
Quarters of Beef Down Per Car, Average

Average number of beef quarters down per car in all cars covered by the report.


277 Cars with Friction Draft Gears
2,288 Cars with Friction Draft Gears
1,490 Cars with Rubber Draft Gears
All 4,055 Cars with High-speed Trucks
0 1 2 3 4 5 6 7 8
Quarters of Beef Down Per Car, Average

Average number of beef quarters down per car in the cars equipped with high-speed trucks.

More than two years ago a special committee of the Freight Loss and Damage Section of the Association of American Railroads undertook a study to learn the cause of the extensive damage to beef quarters which was occurring in transit. The committee made a thorough study of all aspects of dressed-beef handling, including preparation, loading and equipment conditions in relation to the damage found in cars at destination.

It was found that methods of handling beef were practically identical throughout the industry, but damage claims against the railroads for beef carried in the cars of some lines were very high while, for others, the claims were very low. The differences, it was concluded, were mainly due to differences in the cars.

For many years the damage to dressed beef has been a source of expense to packers, receivers and railroads. Altogether too frequently the quarters of dressed beef are torn or fall from hooks and are soiled by contact with the car floor. An examination of the damaged quarters indicates that constant, uncontrolled vertical vibrations cause hooks to tear through the meat and ribs.

During the investigation many refrigerator cars in beef service were inspected. It was found that a very large percentage of these were equipped with the unit type snubbers of designs that were tested in the A.A.R. Truck and Snubber Research Program and were found ineffective. Most of the cars were equipped with approved types of draft gears.

The study embraced a total of 17,480 cars owned as of November 1951 by ten car lines operating beef cars in the United States. It covered a period of 18 months ended December 1, 1951, during which a total of 101,880 quarters of beef were damaged. As broken down by the committee in its report, the cars were classified in three groups. These groups and the number of damaged quarters allocated to each group are as follows:

	No. cars	No. quarters damaged	Avg. no. quarters per car
Cars with unit snubbers or short-travel truck springs	13,018	95,337	7.32
Cars with package type snubbers	407	2,621	6.45
Cars with modern high-speed trucks	4,055	3,922	0.97
	17,480	101,880	5.82

The cars with unit snubbers or trucks with springs having 1⅝-in. travel and some built-in snubbing device amount to 74.5 per cent of all the cars covered by the study and were the cause of 93.6 per cent of the damage. The cars with package snubbers gave a slightly better performance than those with unit snubbers, but the difference was a little less than 12 per cent. Ninety-four of these cars had damage on 135 trips and 23 cars had repeated trips with damage. Of the 23 repeaters, 19 were found in one fleet which represented only 24.3 per cent of the damage found in package-snubber cars.

The 4,055 cars equipped with high-speed trucks are considered by the committee in two groups. Over half of the damage reported as caused by these cars came from 277 belonging to two small groups. Included in the 4,055 cars is a third group not referred to by the committee. This consists of 1,490 cars of one fleet which, in addition to the high-speed trucks, were equipped with rubber draft gears. The three groups and the damage found in the cars of each group are as follows:

	No. cars	No. quarters damaged	Avg. no. quarters per car
Cars in two small groups	277	2,070	7.70
Other cars with friction draft gears	2,288	1,604	0.70
Cars with rubber gears	1,490	256	0.17
	4,055	3,930	0.97

Confirming the comparison to the two larger groups of cars in the table, those with rubber draft gears caused about 76 per cent less damage than others.

The 1,490 cars are operated by Armour & Co., and are subject to a high standard of maintenance which may be in part responsible for their exceptionally good performance. Further light is thrown on this point, however, by the fact that 500 Armour cars in the high-speed truck group are equipped with friction draft gears. Data on damage to dressed-beef in both groups of Armour cars, all of which are maintained to the same standard, are available for a period of 27 months. Beef quarters down in the 1,490 cars with the rubber draft gears average 0.215 per car. For the other 500 cars the average was 0.282, a difference of 23.8 per cent in favor of the former group.

BRITAIN'S SMALL LOADS AND SHORT DISTANCES lead her railroad men to ask: Is rate-making freedom in the new transport act sufficient to enable nationalized railroads to compete successfully with denationalized trucks?

Is Britain Freeing Rails

. . . TO FIGHT FREED TRUCKS?

Government's new transportation legislation denationalizes trucks; gives rate freedom to rails; and decentralizes their administration

By WILLIAM H. SCHMIDT, JR.
Executive Editor

American railroaders will find at least two items of direct business interest in the British transport bill of 1952-1953. One of the important items is a provision to free the railroads of their traditional obligations regarding rate making and rate publication. The other is a provision that the central authority for the government-owned rail carriers be abolished and that semi-autonomous regional organizations take over many of its responsibilities. The bill finally passed on April 27.

The main purpose of the new law, of course, is to carry out the Conservatives' campaign promise—to "denationalize" the country's government-owned over-the-road trucking operations "as quickly as is reasonably practicable." The reason for this action given by the government in power is that only under private, competitive ownership can the shippers of the country get the kind of truck service they need. From Prime Minister Churchill down, the Conservatives have deplored the increasing resort by industry to short-haul private trucking —known in Britain as "C" license vehicles—which continued without restriction after nationalization of transport in 1948. This freedom was a sop to business by the Labor party to undermine opposition to nationalization. The Conservatives point to a growth in private trucks (above 1½ tons) of 37 per cent between December 1948 and September 1952, despite a scarcity of equipment and a host of high costs and special levies. They say that too great a growth of private carriage is a drain on the country's scarce physical and financial resources.

Business interests generally support denationalization of trucking. The Association of British Chambers of Commerce is wholly behind the intent of the new statute, although it disagrees as to the emphasis on speed in disposal of government highway equipment.

In general, criticism of the British Transport Commission (which controls all nationalized transport), of the Road Haulage Executive (which runs the trucks), and of the Railway Executive (which runs the railroads), has been that the set-up "led to excessive rigidity and centralization." The present government's remedies are denationalization of the trucks and reorganization of the nationalized railroads.

Over a year ago the conservative government published its "white paper" on transport policy. It was criticized roundly. On July 8, 1952, the outline of its original transport bill was made public—to meet with a similar reception. The government proved receptive to public opinion. On November 5, Minister of Transport Lennox-

Boyd presented a revised bill containing important new provisions.

As passed by the House of Commons February 16, the bill was received more favorably than its predecessors, but much of opposition remained. The middle-of-the-road journal, the Economist, attacked it for vagueness. The conservative Manchester Guardian called it "a bad bill." The (London) Times liked its provision of freedom for the railroads, but disliked its method for disposing of the government's trucking business. The Railway Gazette charged that it scuttled the coordination in transport achieved thus far; left the trucks free to despoil the railroads; and reorganized the latter in the wrong direction.

Significant Provisions of the New Law

Here are major provisions of the new legislation:

(1) A Road Haulage Disposal Board is to be established to offer for sale to any bidders part of the truck fleet now operated by the Road Haulage Executive. The latter operates a total of about 40,000 vehicles, of which 30,000 are in general over-the-road service. The other 10,000 are split between "parcels" (comparable to express), special service (outsize, overweight shipments, etc.), and "contract-hire." Most of the latter would not be disposed of. The British Transport Commission would definitely keep about 3,700 vehicles—equal to the trucks which the railroads controlled prior to nationalization. Presumably these would be operated in coordinated service with railroads. The railroads themselves would continue also to operate an additional 14,000 vehicles in pick-up and delivery service. In addition, according to Mr. Lennox-Boyd, there is nothing in the bill to prevent the B.T.C. from acquiring an interest in, or total ownership of, any trucking operation at a later date. Just like anybody else, it would have to obtain licenses for the service, satisfying the question whether it is required in the public interest.

(2) The distance limitations on privately operated common or contract carrier trucks now existing (no trip of more than 40 miles overall, or 25 miles from operating base) would be repealed by the end of 1954.

(3) A tax levy of £4 million ($11.3 million) would be assessed annually on highway operators (including industries' own trucks, other than local delivery vans), effective January 1, 1954, on the basis of unladen vehicle weight. Of this £1 million would be used to reimburse the B.T.C. for losses incurred while disposing of its trucking interests. The remainder would go to redeem the capital loss suffered on resale of the trucks to the public. (The B.T.C. paid about £80 million for its trucks, including some £30 million for "good will"; the latter has now "substantially disappeared.")

(4) The railroads would be given greater freedom to establish competitive rates, by removal of traditional statutory restrictions relating to equality of charges, undue preference, or reference to rates charged by competitors. Furthermore, the railroads would no longer have to publish any except their maximum rates (making them comparable to contract carriers in the U.S.). Under the new law there would be no provision for standard charges—only maximum—and a fixed scale of rates would not be required. Also to arm the railroads against inflationary trends, the Transport Tribunal (public body for authorizing rates, similar in certain respects to the Interstate Commerce Commission) would be permitted to grant general revenue rate increases, up to 10 per cent a year, speedily, "ex parte and in private," on a temporary basis.

(5) The railroads would be decentralized by abolition of the Railway Executive, placement of responsibility for certain overall policies (like rates, wages, and building and design of rolling stock) in the B.T.C., and vesting of operating responsibility in a number of semi-autonomous regional managements.

(6) Existing restrictions on capital investment on the railroads and other forms of transport would be lightened to some extent.

RATE FREEDOM FOR BRITISH RAILWAYS UNDER NEW LAW

- **Need make public only maximum rates.**
- **May make private deals, with rates lower than maxima.**
- **Will no longer be bound by prohibition against undue preference or discrimination.**
- **May undercut rates of competing forms of transport.**
- **Need approval of regulatory body only for maximum rates.**
- **Tribunal may grant up to 10 per cent in general revenue rate increases each year —speedily, "ex parte and in private."**

Groups in Interest

Business confines its enthusiasm over the new statute largely to denationalization of trucking. Labor—both the party and the union leaders—is categorically opposed, of course.

Labor objects to denationalization of trucks because:

(1) It doesn't want its long-term program of socialization turned back.

(2) It favors "integration" over "competition," on grounds of efficiency as well as labor ideology.

(3) It worries about who will serve areas which are inherently unprofitable.

(4) It fears the effect of privately operated trucking on transportation workers—chiefly railway employees. Most labor representatives fear that denationalized trucks will take a lot of traffic now moving by rail.

Labor's strategy in soliciting public support on its side has been to: (1) hint at a strike action; and (2) scare off prospective purchasers of the government's trucking fleet by warning them that, once back in power, Labor will *re*-nationalize trucking and that, this time, the owners will not get full compensation—i.e. the government has no obligation to pay for good will, etc., *twice*.

Championing of the rail carriers by Labor (not just by the railroad unions), in opposition to what it foresees as a predatory trucking business, is a queer and

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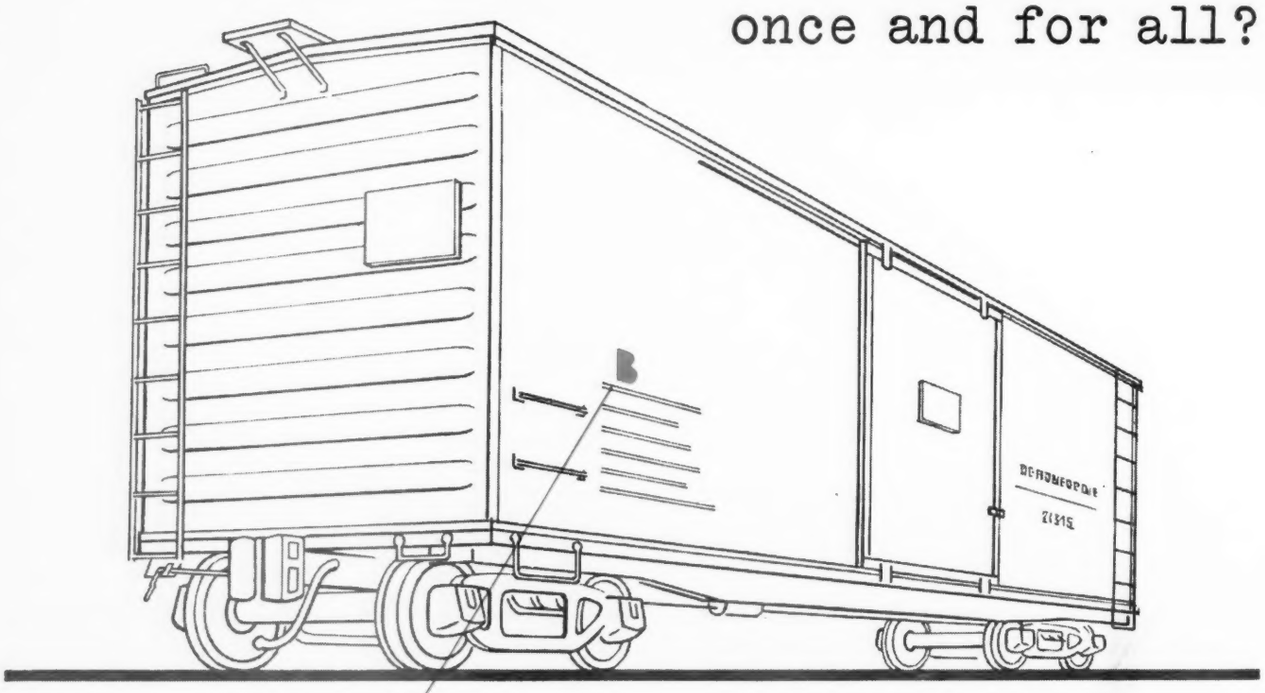

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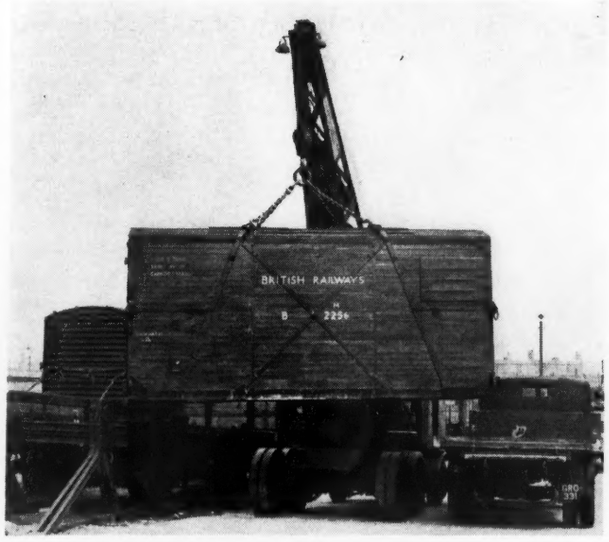

ROAD-RAIL COORDINATION—a keystone in nationalized transport policy—may have harder sledding under the "free-for-all" competitive transport policies of a business-minded government.

REMAINING INEQUALITIES IN BRITISH RAILWAY REGULATION

- **Truckers would have right to object to railway rates, while railways would not possess similar right to challenge truck charges.**
- **Public would have right to oppose railway rates applying in situations where railways possess monopoly (i.e. where no competitor will take the traffic at reasonable rates), but not truck rates.**
- **Shippers of low-grade commodities would continue to have the right to demand special preference.**
- **Rate structure proposed by railways may have to await approval, while truckers would be wholly free from rate regulation in what might be a long interim.**

sudden reversal of sentiment. Before it succeeded in nationalizing the railways, the Labor party held them as possibly the worst example of dying capitalism—next to coal mining. During debate on the Socialists' transport bill of 1947, no insult was too bad for the managements of the privately owned companies or their properties. Now that the railways have been irretrievably lost to private management, they have become the darlings of the Labor party. Alfred Barnes, Labor member of Parliament, who was minister of transport under the Socialist regime and steered their nationalization bill to enactment, said, in debate on the Conservatives' bill:

"Since 1939 all governments and all parties had failed to play the game with British railways. In the national interest their physical assets were exhausted to an extent that no other business had experienced and the Exchequer made a surplus of £190 million ($535.8 million) out of the railways during the war. After the railways had made a loss in 1947 there was still a surplus of £120 million which should have been given to the railways to cushion the effect of the postwar years." But the railways were left without sufficient cars to carry the goods which shippers offered them and "were not even permitted to keep their charges level with rising costs."

Railroad management itself has had little to say in public about the new law—except that John Elliott, chairman of the Railway Executive, praised the proposed rate-making and rate-publication freedoms for the railroads as "two assets of the utmost importance in the bill."

The Railway Gazette (which has always fought zealously in the interest of railroad transportation and its managers), has, however, had a great deal to say about the bill. It doesn't like it. It deplores the prospective fight to the finish between road and rail. It doesn't like the proposed reorganization of the railways. And it sees a lot of alien substance behind the cheery facade of the rate-freedom provisions.

On the surface the new rate freedom for the railroads —point (4) above—looked good. The provision was hailed by the Times as a "landmark in railway history" and as giving the railways a "remarkable degree of freedom in fixing their charges when competing with other transport." The Railway Gazette congratulated the minister of transport for seeking to secure for the railways the "square deal" plus, which they had sought for 20 years or more.

But the Gazette is under no illusion that the provision will give the railroads all the freedom they need to compete with liberated trucking. It pointed out that coastwise shipping and trucking—as well as the public—may object to rates set by the railroads, while neither the public nor the railways would have the right to challenge the truckers' rates. Protection for low-grade traffic is written into the bill. There is no imposition of maxima on the truckers' rates (leaving them free to wax fat where rail competition does not exist). The Gazette failed to see the point in the minister's "weak" defense that the nature of the trucking industry prevents equalization with the railroads' position.

The Economist was equally outspoken about booby traps in the new freedom; it characterized the government as dealing with the problem "with a nice ambivalence." "As the bill now stands, the greater flexibility of charges that it contemplates will be circumscribed at every turn by delays by opposition on the part of any traders (shippers) who can argue—as many undoubtedly will—that they are being hurt." This paper was pessimistic about the speed with which the Transport Tribunal would act on the railways' proposals; it recalled that, while the transport act passed by Labor contemplated a two-year period, following nationalization, for the formulation of a system of rates and fares, no such plan for freight rates has yet been produced. "Are the railways, then, to wait, conceivably for several years, before they are allowed to take this first relatively modest step towards commercial freedom? The essence of this greater freedom . . . is to insure that it works. The bill appears to take special care that it will work only under the most inhibiting circumstances."

Abolition of the Railway Executive is an important provision of the bill. The objection to the Executive ap-

pears to be twofold: (1) Its members are appointed by the minister of transport—not the British Transport Commission—hence friction, despite good personal relations. (2) All full-time members of the Executive have functional (departmental) responsibilities. At the same time they share *corporate* responsibility. The general manager of prenationalization days (corresponding to a railroad president in the U.S.) straddled all departments and saw the enterprise as a whole. But the regional managements since nationalization have suffered under dualism of control by reason of extreme departmentalization.

It is not clear who would have responsibility for preparing the detailed program of reorganization for the railways. The bill is also pleasantly vague about the actual character of the regional administrations and the role of the B.T.C. Remarked the Economist: "If there is one thing that is clear in the bill, it is that the Railway Executive is to disappear; if there is one thing that is unclear in the bill, it is the method of management that is contemplated for the future."

The Railway Gazette is not so sure about the advantages of decentralization. It recalls that only the grouping of the railways into four companies in 1923 made it possible for the companies to make the economies which enabled them to keep alive in the face of truck competition. After World War II, it says, the private companies had grave doubts about their future prospects, and some of them seriously considered total unification, under a form of private ownership. The Gazette doubts if the railways can survive truck competition without the continued benefits of standardization and "rationalization."

The principle of denationalization of the trucks, plus the main provisions of interest to American railway officers—greater rate freedom and reorganization of the railways—stand out in the provisions of this history-making legislation. The test of its fitness is aptly set forth by the Railway Gazette: "If the railways are to meet free road competition successfully, they will need to be as free as their competitors in such things as charges and conditions of carriage, and they will need to be organized and managed with the greatest possible efficiency, otherwise they will not stand a chance and the nation which still relies on them to move the bulk of the traffic of the country will be grievously let down."

B&O Employees Like Annuity Plan

Favorable response points up appeal of scheme for paying pensions supplemental to those available under Railroad Retirement Act

The appeal of the Baltimore & Ohio's new annuity plan has been pointed up by the favorable response of those eligible to participate. The eligibles are some 34,000 B&O employees whose salaries or wages average in excess of $300 per month for 12 consecutive calendar months; and more than 22,800 of them have signed up, although the May 29 deadline for those initially eligible is still four weeks away.

The plan is sustained on a current basis by equal contributions of employees who become members and the B&O, but the road's cost will be substantially more. It has also agreed to assume the so-called prior service liabilities which will arise because service before the plan's effective date enters the annuity formula.

Annuities provided by the plan are supplemental to those available under the Railroad Retirement Act. It is a formalized, actuarily sound set-up supplanting an informal arrangement whereby the B&O granted special supplemental allowances to some of its retired employees.

The Railroad Retirement Act provides annuities based on compensation up to $300 a month. The B&O plan carries on from there. Any employee earning average compensation in excess of $300 a month for 12 consecutive months may join—provided he is under 70 years of age and his application for membership is filed within 90 days of the date he first becomes eligible. May 29 deadline for those initially eligible will be 90 days after the plan's effective date, which was March 1. Prior to that date, more than 300 B&O officers got together in a Baltimore meeting where details of the plan were explained by officers who had a part in drawing it up. Also, an explanatory booklet, containing the full text of the plan, has been distributed to employees. If an eligible employee fails to join during the 90-day period applicable to his case, he is thereafter barred from joining.

The initial contribution rate is 4½ per cent of each member's compensation which is in excess of $300 a month. The B&O contributes currently a like amount, and from time to time additional amounts needed to take care of the prior-service liabilities.

The plan's basic benefit—the single life annuity—is payable to a member who has attained the age of 70, or who is 65 or more and has had at least 30 years of continuous service.

The monthly payment is calculated by multiplying the number of years of continuous service by one per cent of the average monthly compensation in excess of $300 earned by the member during the 10 years next preceding his retirement.

Thus, a member who retired after 30 years of service, having had average earnings of $400 a month during the 10 years immediately prior to his retirement, would

WALTER L. PRICE, vice-president, accounting and finance, and a member of the plan's board of trustees, answers a question posed by one of the B&O officers who gathered at a Baltimore meeting to discuss the plan.

get $30 a month, i.e., one per cent of $100 times 30. If he had 40 years of service, he would get $40 a month. Meanwhile, of course, he would also get his annuity under the Railroad Retirement Act, which provides up to $165 a month.

For the $500-a-month member, the B&O plan would provide a supplemental annuity of $60 a month if he retired after 30 years of service, and $80 a month if he had put in 40 years. For the $1,000-a-month member, the supplementals would be $210 and $280, respectively, while those of the $2,000-a-month member would be $510 and $680.

Full benefits under the plan are also available to members, regardless of age, who retire because of total and permanent disability following at least 30 years of service. If a member became totally and permanently disabled after less than 30 years of continuous service (and prior to attaining age 70), his annuity would be calculated on the 30-years-service basis; but it would then be reduced 1/180th for each calendar month by which his period of continuous service was short of 30 years.

A compelling incentive for retirement at 70 is provided when the plan stipulates, as it does, that membership and annuity benefits will be lost if the member "does not retire from company service and make application for an annuity prior to the first day of the month following the month in which he shall have attained 70." If a member remained in service beyond the age of 70, he would get only a lump-sum refund of the amount of his own contributions plus interest. A like settlement is made with members leaving B&O service and, therefore, withdrawing from the plan. A plan member is permitted to withdraw while remaining in service; but the lump-sum settlement with him is deferred until such time as he may leave the service.

Unlike the Railroad Retirement Act, the plan makes no special arrangements for the retirement of women employees at 60 years of age. If a woman employee elects to retire at 60, with her full Retirement Act annuity, she would not be entitled to a supplemental annuity under the plan. She would get the lump-sum refund of her contributions, plus interest.

The plan's benefit set-up is not limited to the single-life annuity. There are also provisions for joint and survivor annuities, death benefits prior to normal retirement age, and the level income option. The latter is an arrangement whereby a plan member's widow (or other designated beneficiary), who is under 65 years of age, can elect to receive higher than normal payments until she attains that age and thus becomes eligible for an annuity under the Railroad Retirement Act. When that annuity began, her payments under the plan would be cut to less than normal. The result would be equal monthly payments over the whole period involved.

Since the plan's benefits are designed to supplement those of the Retirement Act, its provisions are flexible enough to permit adjustments to accord with changes in that act. The plan and its funds are administered by a five-member board of trustees appointed by the B&O president and board of directors.

Two of the trustees must be B&O directors and the present director-trustees are J. Hamilton Cheston and John C. Traphagen. The other three trustees are B&O officers—Walter L. Price, vice-president, finance and accounting; W. C. Baker, vice-president, operations; and F. G. Goebel, vice-president, personnel.

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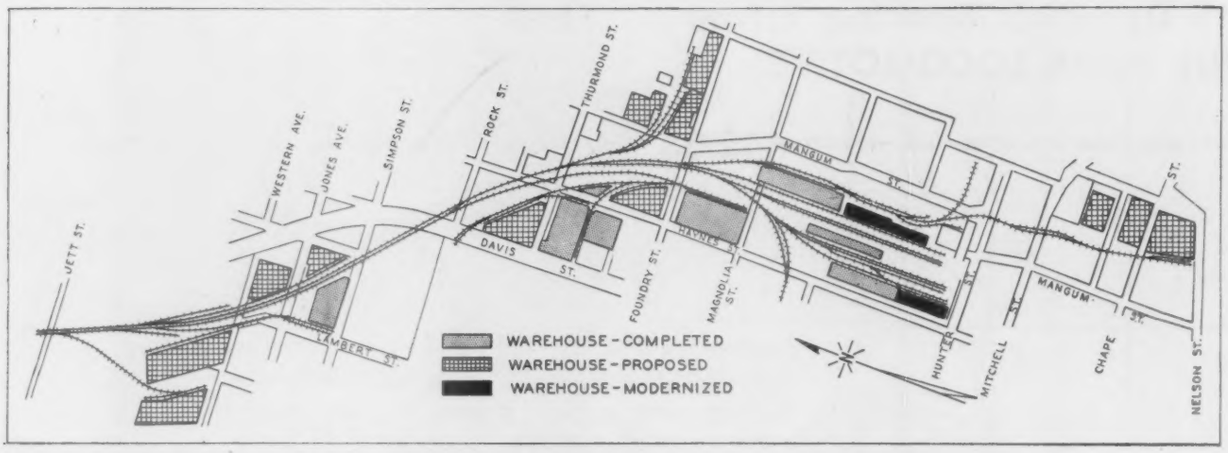


INDUSTRY TRACKS thread the area where the warehouse construction project is under way.

COAST LINE JOINS IN LARGE

Warehouse Project at Atlanta

Plans call for expenditure of $5 million this year in development of area formerly occupied by substandard dwellings—New structures, of reinforced concrete, are of unusual design

As part of a long-range program to attract new industries to Atlanta, Ga., the Atlantic Coast Line is cooperating with Champion Terminal Warehouses, Inc., in a joint project involving the expenditure of about $5 million in 1953 for the construction of new warehouses in downtown Atlanta. The work to be done this year amounts to an expansion and continuation of a program already carried out at a cost of about $2 million. Thus, by the end of this year the program will have involved the expenditure of approximately $7 million for the construction of warehouses in substandard dwelling areas along the railroad.

The design chosen for the warehouses involves reinforced concrete construction incorporating a number of interesting features, particularly in the methods of construction.

Involves the Old AB&C

The new warehouse project is an integral part of a rehabilitation and development program involving the the Coast Line's Western division, which was formerly the Atlanta, Birmingham & Coast. The properties of the AB&C, including approximately 637 miles of railroad in Georgia and Alabama, serving Atlanta and Birmingham, were acquired by the Coast Line effective January 1, 1946. Immediately afterwards a program was undertaken to rehabilitate the physical properties of the former AB&C to bring them up to the standard of the Coast Line generally, and at the same time the long-range program was developed to increase industrial activity in the Atlanta area, as well as in other areas served by the Western division. It is reported that the program has already resulted in an increase of over 130 per cent in the amount of traffic handled by the Western division since 1946.

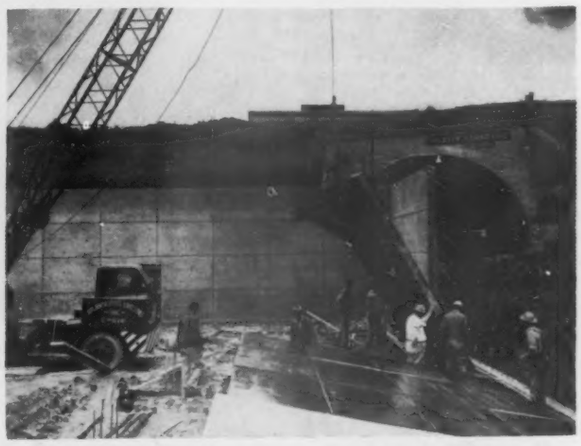
The development in Atlanta covers approximately 10 city blocks in three separate tracts. Eleven warehouse or light-manufacturing sites will be provided, along with offstreet parking and loading facilities at each site. The provision of railroad sidings is an integral phase of the undertaking. To make way for the warehouses it was necessary to raze approximately 100 substandard dwellings. Because of this, and the fact that new industry will be attracted to the community, the city of Atlanta is cooperating fully in the development.

The warehouses that have been constructed to date are of reinforced concrete, and the same design will be used for those to be built. Advanced techniques of construction are being used under the $5 million program scheduled for 1953. The first step is to place the concrete for the footings and the foundation walls up to the height of the floor. The procedure in constructing the walls involves the use of large panel wall forms consisting of 16-ft. by 20-ft. units, which are erected with the aid of a motor crane. After one side of the wall form has been aligned and braced, the reinforcing steel is then placed and the outside wall or

RAPID, ECONOMICAL CONSTRUCTION methods can be used because the design of these reinforced concrete warehouses lends itself to such techniques.

TUBULAR FORMS, called Sonotubes, which are made of spirally wound laminated fiber, are used in constructing the interior columns in the warehouses.

REINFORCED CONCRETE construction is used for the roofs as well as the walls, floors and columns. The roof forms are decked and lined with Masonite Presdwood.



PANEL WALL FORMS consist of 16-ft. by 20-ft. sections, lifted into position by a crane. The timber brackets at the top of the panel are supports for a working platform.

POURING CONCRETE in a side-wall form. One of the men at right is holding a concrete vibrating tool.

the other side of the form is erected and fastened to the one already in place with coil ties and cone spreaders. Concrete is placed with a bucket handled by the motor crane. Approximately 100 lin. ft. of wall is placed in each pour.

The roof forms, supported by conventional shoring, are decked and lined with Masonite Presdwood. The interior supports for the roof consist of concrete columns constructed with the aid of Sonotube forms, manufactured by Sonoco Products Company, Hartsville, S. C. The spacing of the columns is approximately 20 ft. by 20 ft., and each is surmounted by a dropped panel, 8 ft. square.

While this construction procedure is similar in a way to the tilt-up method, it provides a rigid structure wherein the sidewall reinforcing turns into the roof slab and eliminates the hinge joint. Scoring is used on both the interior and the exterior of the side walls. This has a two-fold purpose—one to eliminate the fin left by the joints in the liner of the form and the other to act as a control joint located as designated by the structural engineer, at which point 50 per cent of the horizontal steel is cut completely. All the buildings are being constructed with concrete floors at car-floor level, and the ceiling height has been established at 16 ft.

William H. Armstrong, Atlanta, is the consulting engineer for the project, and the warehouses are being constructed by Wesley & Co., engineers and builders, of Atlanta.

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"Every question you ask about Illinois Central will get an honest answer"

It took more than five months of careful planning. And it took two days of intensive study by nearly 800 members of the Illinois Central's "middle management" group. But at this writing there is perhaps no major railroad in the U.S. with a staff better informed about its own inner workings.

The seminar's purpose was threefold:

(1) To teach how the road's management team works.

(2) To let supervisors and junior officers get better acquainted—both among themselves and with top management.

(3) To enable all to share a common knowledge and understanding of their railroad, its problems and its accomplishments.

In its execution, this educational venture showed much evidence that its purpose wasn't taken lightly by those in attendance. In the words of President Wayne A. Johnston: "This is the most important meeting of Illinois Central people that we have ever held." In the caliber of questions fired at him in the closing session on April 14, Mr. Johnston must have found adequate reassurance that this major investment in management training aroused the kind of interest that was expected.

Top Management Teaches

The seminar actually got under way at a luncheon at the Palmer House in Chicago on April 13. But the morning was given over to staff meetings of the engineering, law, operating, traffic, accounting and purchasing and stores departments. Table seatings were rotated at each seminar meal (except breakfast) and they were so arranged that no more than one representative of each department was at each table. Thus, at a typical seating, there might be a district traffic representative, a signal supervisor, a trainmaster, a supervisor of track, a general foreman, a claim agent, a master mechanic or possibly a chief clerk or a special agent. All wore convention-style pin-on name tags with name, title and location printed in bold one-half-inch letters.

REVIEW AND REFERENCE to the studies completed was afforded by printed proceedings. Copies will be sent also to other key personnel who did not attend the seminar.

Keynoting the seminar at the opening luncheon, Mr. Johnston said he hoped "each of you will gain a more realistic appraisal of your own job in relation to the Illinois Central organization as a whole." He then pointed out that "the combined thinking of people in the positions represented in this seminar is reflected in shaping policy on our railroad," and went on to say:

"Now that we have been blessed with a government which has indicated an understanding of the problems of business and a responsiveness toward resolving them, we of management must do everything within our power to convince the public by word and deed that their confidence has not been misplaced. This is one of our greatest challenges in the years immediately ahead. We now have the opportunity to prove the superiority of our business economic system over an economy dominated by government paternalism."

Each Department Tells Its Story

In the sessions that followed, the head of each major department of the company presented the story of his organization—how it works; what its problems are; what its connections with other departments are; and how members of other departments can help it function. That these presentations were usually frank and to the point may be discerned from the following quotations:

• "We only want traffic that pays us a profit, although we have to take some borderline business, and there are cases where we have to take the bitter with the sweet. These situations we must handle intelligently and with open eyes."—*Roy E. Barr, vice-president—traffic.*

• "Our telephone manners reflect our own personalities. But more than that, they reflect the spirit of our entire railroad. That is why we have made it a practice for every officer to answer his own telephone. In case you didn't know, that includes the president. You might be surprised to know how many carloads of business have been won for the Illinois Central because people who call the president don't have to run a secretarial gauntlet."—*George M. Crowson, assistant to the president (public relations).*

• "I dare say few of us have stopped to think of the cost of commonplace items we see about us every day. Did you know that an ordinary hopper car costs more than a fancy Cadillac?"—*Ottis O. Albritton, vice-president, purchases and stores.*

• "We plan to expand our freight diesel program gradually. At present, our plan is to add some 30 to 50 units per year. At the same time, we are going to be guided by what you might call a three-point policy. First, how good are financial and business conditions? Second, we don't have to rush into dieselization because we have excellent steam power which is particularly effective on our main lines. Third, we have a plentiful coal supply on our lines. Coal has been good to us,

PRESIDENT JOHNSTON: "This is the most important meeting of Illinois Central people that we have ever held."

SEMINAR SERVICE staff, who handled inquiries, seating at tables, etc., numbered nearly 50.

and we have tried to be good to coal. For instance, we have spent a lot of money in research to build a coal-burning gas turbine."—*Clyde J. Fitzpatrick, general manager (northern lines).*

• "In 1927 the Illinois Central had a total debt of $383 million. That was the greatest amount of money our railroad has ever owed at any one time. By the end of 1952 this debt had been cut down to $204 million. That is the smallest amount of money our railroad has owed at one time since 1912. . . . It is my well-considered opinion that this reduction of nearly one-half in the total debt and more than one-half in what we have to pay interest on, is the greatest single achievement the Illinois Central has ever made."—*President Johnston.*

• "There will always be grapevine and sandhouse rumors. We of management, and our supervisors and foremen, have a responsibility for following up such rumors with facts. The everyday opinions formed by rank-and-file employees about each of us—and the management team in general—are going to determine to a great extent the willingness of employees to be cooperative and productive. And what employees think about their company is going to be reflected in the opinions of their friends, neighbors and the community as a whole. Keeping employees informed helps keep them on the IC team."—*Gideon J. Willingham, director of personnel.*

• "Disposing of claims on a reasonable basis today is becoming increasingly difficult because of widespread publicity given to the astronomical verdicts returned by juries. You should make known to employees that the difference between a reasonable settlement and a large verdict is generally absorbed by fees paid for expert medical testimony, ambulance chasers, attorney's fees and a multitude of other items of expense unknown to the injured employee until his case is terminated and his lawyer submits his statement."—*Joseph H. Wright, vice-president and general counsel.*

• "A railroad is not permanent. It is never finished. Like all living objects, it is constantly undergoing change. Weather, decay and obsolescence take their daily toll. Relentless competition and incessant demand for improved services make facilities that were adequate yesterday either inadequate or obsolete today. When the continuing process of rebuilding and improvement stops, the railroad will cease to function and will die because deterioration of its physical property never ceases."—*Charles H. Mottier, vice-president and chief engineer.*

• "We have made a study of all the company's records to determine which were vital to the corporation's existence in the event of disaster. Now, a portion of one of our out-of-town buildings has been converted into a fireproof, air-conditioned storage vault. A partially filmed duplicate set of IC minute books, supporting papers, minute books of subsidiaries, stock registers, journals and other accounting and valuation records have been placed in this vault."—*Albert L. Church, assistant to the president and secretary.*

The seminar's purpose was threefold:

(1) To teach how the road's management team works.

(2) To let supervisors and junior officers get better acquainted—both among themselves and with top management.

(3) To enable all to share a common knowledge and understanding of their railroad, its problems and its accomplishments.

"Loaded with Dynamite"

When they filed back into the hotel's grand ballroom after the final luncheon session, the seminar "students" found spiral-bound copies of the presentation given by each department head. In addition, the book contained the talk by Dr. Norman Vincent Peale, minister of the Marble Collegiate Church, New York, who spoke at dinner the evening previous.

The time was at hand for a two-hour question-and-answer session—an examination with an unusual twist. The "students" asked questions of the "faculty" and by the caliber of their questions demonstrated just how

CAREFUL PLANNING of duties of seminar staff and hotel employees kept the meeting right on split-second schedule.

VISUAL AIDS, including photo enlargements, motion pictures, slides, gave the meeting changes in pace that kept interest levels high.

much of the material they had assimilated. Earlier, at the final luncheon, Mr. Johnston had reviewed the important points made in each of the presentations. Question cards were placed at each of the 92 tables and under the guidance of a table chairman, the questions were evolved during mealtime discussion.

"Every question you ask about Illinois Central will get an honest answer," he said as the luncheon was concluded. After he had sorted the cards by department and returned to the podium, he opened the final session by remarking: "Wow! Some of these are loaded with dynamite!"

The department heads succeeded in answering a majority of the questions before the session was closed. But every question, whether or not it was answered on the floor, is correctly answered in writing by the appropriate officer. The task is a huge one, for there were several hundred questions posed.

In rapid-fire order, with only a minute or so to give the answer, the officers faced questions like these:

Traffic.—"How can the individual employee be more effective as a salesman of IC service?"

Engineering.—"What is the estimated value of air rights owned by the company?"

Accounting.—"Can anything be done to smooth out budget handling to prevent sudden layoffs and rehiring during slight recessions and thus cut down on labor turnover?"

Law.—"How are the charter taxes paid in Illinois prorated to the county and municipal governments and what can we say to our neighbors to convince them that the railroad does pay its share of local taxes?"

Table seatings were so arranged that no more than one representative of each department was at each table. Thus, at a typical seating, there might be a district traffic representative, a signal supervisor, a trainmaster, a supervisor of track, a general foreman, a claim agent, a master mechanic or possibly a chief clerk or a special agent.

GETTING ACQUAINTED with fellow employees otherwise known only as a telephone voice or memorandum signature, proved beneficial as well as a lot of fun.

Purchasing.—"Is it better to pay cash for new equipment when you have the cash; or is it better to buy on loans? Why?"

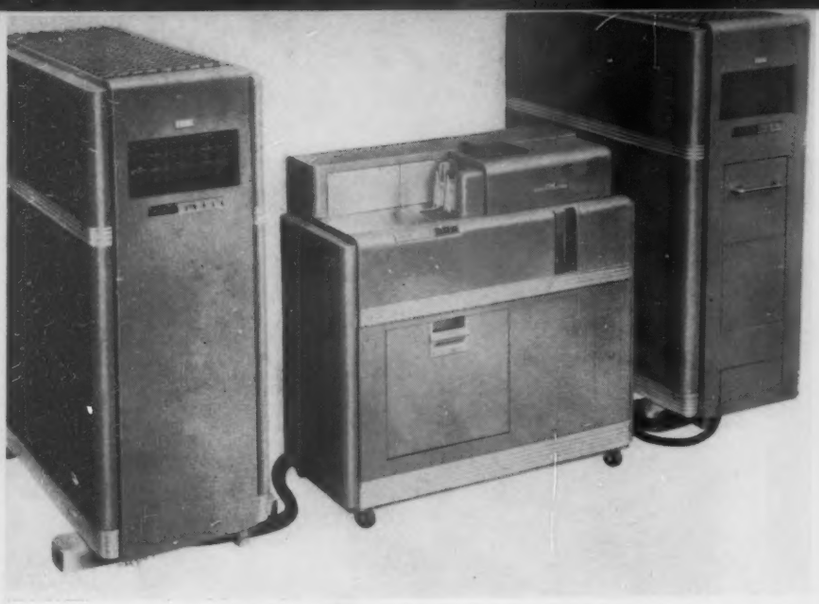
Personnel.—"Are any training programs contemplated for younger employees to acquaint them with all phases of their jobs?"

Treasury.—"Is it the plan or policy of the company to eventually and completely eliminate the funded debt of the IC and save the present $8 or $9 million in interest?"

Operating.—"Discuss the IC's policy toward purchase or lease of specialized freight equipment in which much interest is being shown by shippers of furniture, batteries, machine parts and other high class freight."

Public Relations.—"The apparent results of this seminar make it an outstanding success. Are they to be continued? If so, when and where?"

This latter question was asked repeatedly. Mr. Johnston said finally that consideration would be given to another one in 1955—"if conditions are such that we can afford it at that time."



ELECTRONIC CALCULATORS are built to order to suit the requirements of specific jobs to which they can be economically adapted.

"ROBOT TRAIN WATCHER" (arrow) is a new application of electronics in railroading.

COORDINATED SYSTEMS NECESSARY BEFORE . . .

Railroads Use "Giant Brains"

Railway Systems and Procedures Association holds session designed to help carriers take advantage of electronic computers

The equipment to handle large volume data processing work for the railroads is available now. The railroad industry has a systems problem rather than an equipment problem in getting ready for the electronic computer. A year or more of 'get-ready' time will be necessary before the industry is equipped to cope with the changes that these 'giant brains' can—and will—bring in the way its accountants work." With these words Arthur Katz, assistant director of Univac Applications Department of Remington Rand, Inc., summarized the opinions of a panel of electronics experts who participated in part of the program of the second annual meeting of the Railway Systems and Procedures Association, held at Chicago, April 22-24.

These experienced men from the field of electronics were gathered to discuss the subject of "electronics developments which await railroad application." The stated purposes of the association's electronics session were: to give members and guests an introduction to machines that "think"; to familiarize them with the capacities and abilities of the electronic computers which exist today and of those which may be produced in the not too distant future; and to explore the field of "automation" and what it can mean as a tool of railroad management.

There was no disagreement among the panel members as to the ability of computer manufacturers to build machines that would do the work of processing huge volumes of data, and do it much more speedily than is generally possible now. It was apparent, too, that these devices are expensive to produce, the expense to a great extent depending upon what the user wants the machine to do. Therefore, careful evaluation of the functions which the machine will be asked to perform must be made before orders are placed. Mr. Katz expressed the opinion that any firm paying tabulating machine rentals of $70,000 per year or more, or employing in clerical capacities 100-150 persons, is in a position where it had better investigate the possibilities of the electronic computer. R. E. Sprague, vice-president, applications and sales of the Computer Research Corporation (a subsidiary of National Cash Register Company), estimated roughly that a computer which would do the work of turning out the quarterly commodity statistics report would cost about $500,000.

W. B. Hebenstreit, associate head, advanced electronic laboratories, Hughes Aircraft Company, said it would be possible for an electronic scanning device to take numbers and initials from cars as they come into a yard. Also, if the form of the waybill were changed, and the bill were in a pocket on the side of the car, pertinent data could be taken from the bill by the scanner and automatically printed on a form in a machine which would be in the yard office. However, he said, he had no way of knowing whether such a machine would be economically feasible.

Dr. L. W. Swanson of the applied science department of International Business Machines Corporation mentioned the operations research techniques of Melpar, Inc. (*Railway Age*, April 20, page 71), and said that electronic computers could do quickly some of the work which the operations researcher has had to do by laborious hand methods. Dr. Swanson said that his company's newest electronic computers could turn out

THE ELECTRONICS COMPUTER PANEL at the Systems and Procedures Association meeting in Chicago, left to right: R. E. Sprague; M. E. Mengel; L. W. Swanson; E. C. Berkeley; W. B. Hebenstreit; Arthur Katz; Samuel Lubkin.

in seven minutes work which with its older equipment would take 50 hours. He also showed his company's new color film on electronics, "Piercing the Unknown."

Dr. Samuel Lubkin, technical director, Electronic Computer Division, Underwood Corporation, told of his company's efforts to build low-cost machines. He said that they had developed one general purpose computer which sold for slightly more than $60,000. He said he was being urged to develop machines whose cost would be under $10,000. Such machines would be used for specific jobs where the volume of data processed would be relatively small. Dr. Lubkin said he believed that special rather than general purpose computers would be the ones which would be used most frequently by industry. He also mentioned one of his company's computers which has been used to handle experimentally a payroll computation job. This computer, he said, is not one of the world's fastest but had handled satisfactorily the processing of each employee's payroll record, including the writing of the check, in 27 seconds. Of this time, 18 seconds were required for the input and output functions, with the computation taking the other nine seconds. Quarterly earnings reports were being turned out at the rate of one each seven seconds, he said.

M. E. Mengel, special representative of Burroughs Adding Machine Company, stated that his company's experience had been that frequently systems had been results of compromise because the advantages of automatic data processing were required as well as those of accounting machines. He mentioned that his company's newest accounting machine, the Sensimatic, could produce a punched paper tape as a byproduct of a posting operation. "Such a device," Mr. Mengel continued, "has many obvious applications. One is accounts payable, where the accounting machine is used to prepare the voucher, with the paper tape produced as a byproduct for subsequent distribution via the tape to punched cards, to a magnetic tape or to magnetic drums. . . . The association of an encoding device like a paper tape punch with pieces of peripheral equipment is essential if the maximum labor saving is to be obtained."

Mr. Katz also referred to the economy, under some circumstances, of his company's electronic computers. An insurance company user of one of these computers had reduced the cost of processing insurance policies by about 87.5 per cent, he said.

Functional Changes Implicit

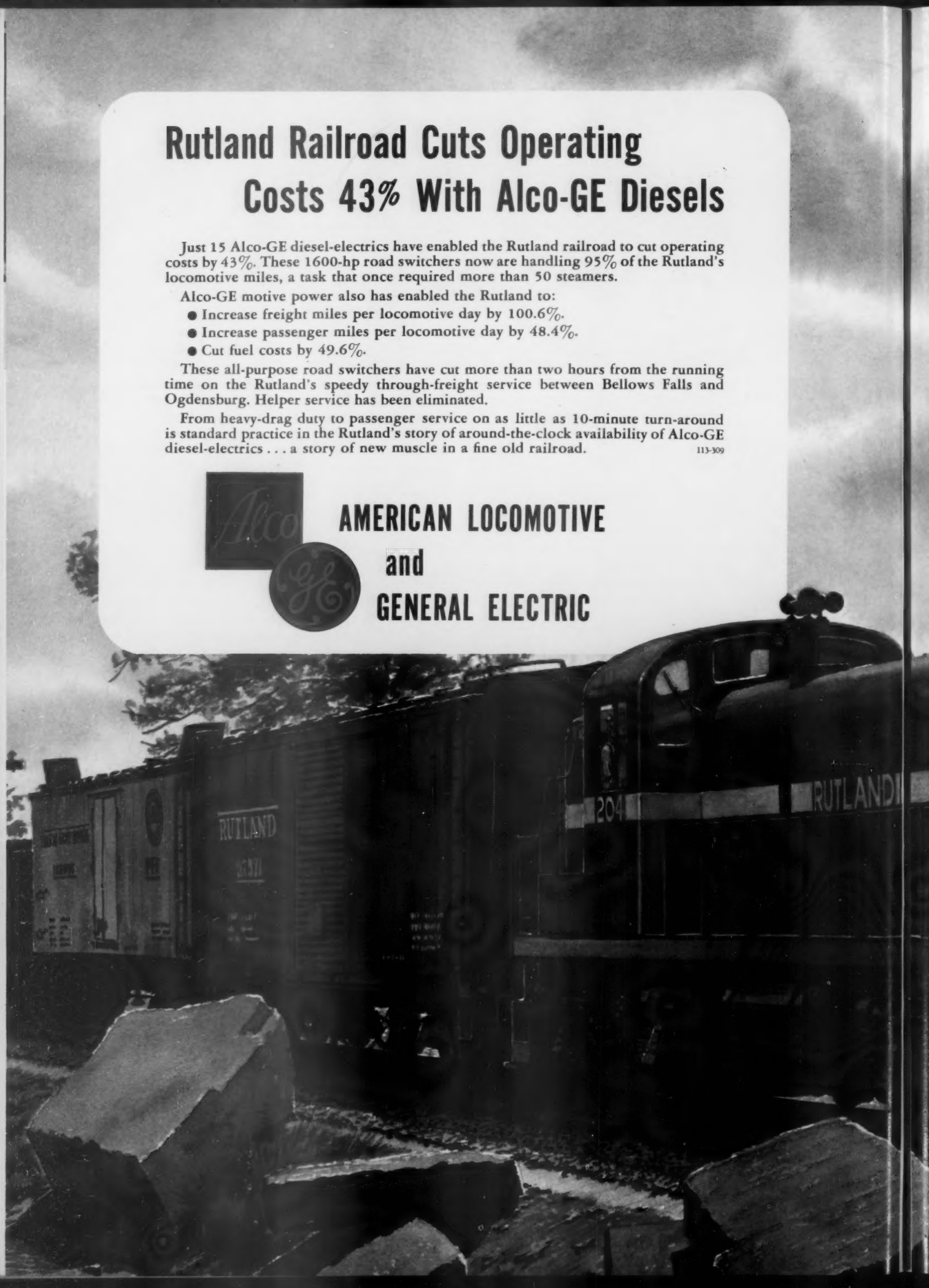
Edmund C. Berkeley, author of the book, "Giant Brains" and publisher of the magazine Computers and Automaton, was chairman of the electronics meeting. Mr. Berkeley, too, emphasized that all industry, in the light of computer developments, has a "get ready" problem. A lot of imagination will be required, Mr. Berkeley contined, successfully to apply electronic computers to railroad work. In addition to acquiring well qualified technicians, the railroads, and other users of electronic computers, to make such applications, must allocate "organization functions in new ways, which is a hard and a necessary job, because electronic systems have no respect for existing lines of demarcation."

Mr. Berkeley and the panel agreed that several things should be done to get ready for the electronic age. First, computer manufacturers must develop applications staffs with knowledge of systems and procedures; second, users of electronic equipment should form groups to study systems and procedures as well as computers; and third, users could call on consulting firms, such as McKinsey & Co. and Melpar, Inc., for help with computer problems.

The electronics session consumed one day of the three-day meeting of the association. The first two days were spent mainly in discussion of the systems and procedures function and its places in the organization. First, a panel of railroad men, led by William Bamert, assistant to vice-president of the Chesapeake & Ohio, discussed "a blueprint for planned systems improvement."

Carl Bick, vice-president operation of the Chicago, Indianapolis & Louisville, stated his belief that systems improvement could be carried out best by the line supervisor. Proper delegation of authority and respon-

(Continued on page 78)



Rutland Railroad Cuts Operating Costs 43% With Alco-GE Diesels

Just 15 Alco-GE diesel-electrics have enabled the Rutland railroad to cut operating costs by 43%. These 1600-hp road switchers now are handling 95% of the Rutland's locomotive miles, a task that once required more than 50 steamers.

Alco-GE motive power also has enabled the Rutland to:

- Increase freight miles per locomotive day by 100.6%.
- Increase passenger miles per locomotive day by 48.4%.
- Cut fuel costs by 49.6%.

These all-purpose road switchers have cut more than two hours from the running time on the Rutland's speedy through-freight service between Bellows Falls and Ogdensburg. Helper service has been eliminated.

From heavy-drag duty to passenger service on as little as 10-minute turn-around is standard practice in the Rutland's story of around-the-clock availability of Alco-GE diesel-electrics . . . a story of new muscle in a fine old railroad. 113-309

AMERICAN LOCOMOTIVE
and
GENERAL ELECTRIC

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204

TALK-BACK LOUDSPEAKERS are electronic devices now widely and profitably used in many yards and warehouses.

(Continued from page 75)

sibility, he said, would give the supervisor the time he needs. C. A. Strickland, manager, office methods and procedures of the Baltimore & Ohio, agreed partially with Mr. Bick. One of the objectives of a well planned systems improvement program, Mr. Strickland said, is to make the line supervisor conscious of the fact that there are countless opportunities for systems and methods improvements. However, he went on, an independent staff of procedures men, regardless of its place in the organization, could do a lot to help speed up the improvement program.

The other member of the panel, G. F. Chadwick, manager, office services of the Canadian National, said his company had placed the methods and procedures function in the personnel department. This, he thought, was "a natural," since above all any system is built around the combination of people and equipment.

R. H. Booth, executive manager of Prudential Insurance Company, told of his company's management evaluation program, which he said was somewhat suspect to department heads when it began a few years ago. Now, he said, these department heads frequently ask the evaluation staff to come in and look over their organizations to see if their work cannot be performed better.

Another speaker at the meeting was R. F. Neuschel, associate manager of McKinsey & Co., management consultants. Mr. Neuschel, author of books and articles on systems and procedures work, dealt mainly with objectives of the Railway Systems and Procedures Association. The overall objective of helping to increase management effectiveness he called basic to any systems approach. Altogether too often, he said, procedures analysts plunge into the job of setting up some method of producing statistical information without asking themselves what the information produced from the statistics could control. Unnecessary reports are causing a serious loss of valuable executive time, he continued, and many executives are rebelling against reports in general, and thereby missing much that is good in many of them. Therefore, procedures should be set up with the sole thought in mind of what controls they would supply to help increase management effectiveness. Clerical cost reduction should be an important, but secondary, consideration, Mr. Neuschel said.

Mr. Neuschel called more interdepartmental cooperation a necessity, since "there can be, and often is, widespread duplication or triplication of effort between departments." One of the best ways a procedures analyst can promote the interdepartmental point of view, he said, is to let his unit of study "be a procedure and not simply a job or a series of jobs."

Systems and procedures and training department personnel of the Allegheny-Ludlum Steel Corporation presented their program for improved systems, which they called "management participation." In this program, all levels of management, from the factory foreman to the department manager, participate in conferences, with each conference (or a number of such conferences, if need be) devoted to solving a particular problem. Through this program, the various levels of management agree on problems to be solved and then bring all their experience to bear on seeking a solution to the difficulty.

Professor Edward Schulz of the New York University School of Commerce and Finance, speaking on "procedures tools and techniques" told the group that organization structure is basic to having good systems and procedures. He suggested that business organizations should audit their organization structure frequently so that each business can be sure that maximum effectiveness is being realized. Mr. Schulz warned that new conditions frequently make much of one's experience obsolete.

More Interdepartmental Cooperation

J. F. Feagler, chief methods research officer of the C&O, the retiring president of the association, told the group that much had been accomplished during the year in getting the association organized as a working group. However, he said, more must be done to promote the idea of interdepartmental cooperation, to the end that people will think of themselves as working for the whole railroad rather than for a given department. There is much to be done to reduce clerical costs, he said. Since clerical wages amount to one dollar of every $12.38 of gross revenue taken in by the railroads (8 per cent) he thought this should be obvious. Mr. Feagler suggested heightened activity in the association's workshop program as one project promising help to cut those costs.

Elected to the presidency of the association for the 1953-54 year was B. E. Wynne, assistant to comptroller of the Bessemer & Lake Erie. Mr. Strickland was elected vice-president, and J. W. Milliken, associate editor of *Railway Age*, was re-elected secretary-treasurer. Re-elected to the executive committee were H. L. Porter, assistant comptroller of the New York Central and Mr. Chadwick. New members of the committee are: Mr. Feagler; E. Mech, auditor freight receipts of the Illinois Central; and V. P. Morgan, supervisor methods of the B&O.

Cutting Sherman Hill down to size

Nature didn't always fashion hills for modern railroading. But with Caterpillar DW20 wheeled Tractors on your team, you can rearrange the earth to your convenience.

Outside Cheyenne, Wyo., the Union Pacific is doing just that on famous Sherman Hill. When the barrel-chested Cat* Diesel Tractors with their matching No. 20 Scrapers are done, 3,000,000 yards of rock and 4,000,000 yards of dirt will have been moved. Grades and curves will have been eliminated. So will the necessity for using steam locomotives and helpers. Sherman Hill will be tailored for Diesel travel.

The big yellow work horses on Sherman Hill are barreling through 8 trips an hour on a one-mile haul, carrying a capacity load. Capacity for the rough-and-ready units is 20 cubic yards heaped, 15 yards struck.

You expect this performance of Caterpillar DW20s. The burly tractor doesn't die with heavy loads or in loose soil because of the tenacious lugging characteristics built into it. The earth-eating scraper loads and spreads quickly. Its high apron lift and positive ejection get rid of heaping, sticky materials in a hurry. It is cable-operated for fast, sure action.

You'll like these Cat units and so will your operators. Their easy maneuverability and safety make them operators' favorite equipment. Ask your dealer for a demonstration. It will help you understand why many railroads use Caterpillar equipment for off- and on-track work.

Caterpillar Tractor Co., Peoria, Illinois.

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Long service life with minimum maintenance—that's how Amcreco quality products reduce maintenance-of-way costs to the lowest possible level. Amcreco cross ties, bridge timbers, poles and plank last longer with greater strength because they are pressure treated in creosote by experienced Amcreco methods.

Start now and lower your maintenance-of-way costs by taking advantage of our nearly half a century of wood treating experience. Call your nearby Amcreco sales office for positive information on maintenance cost reduction.

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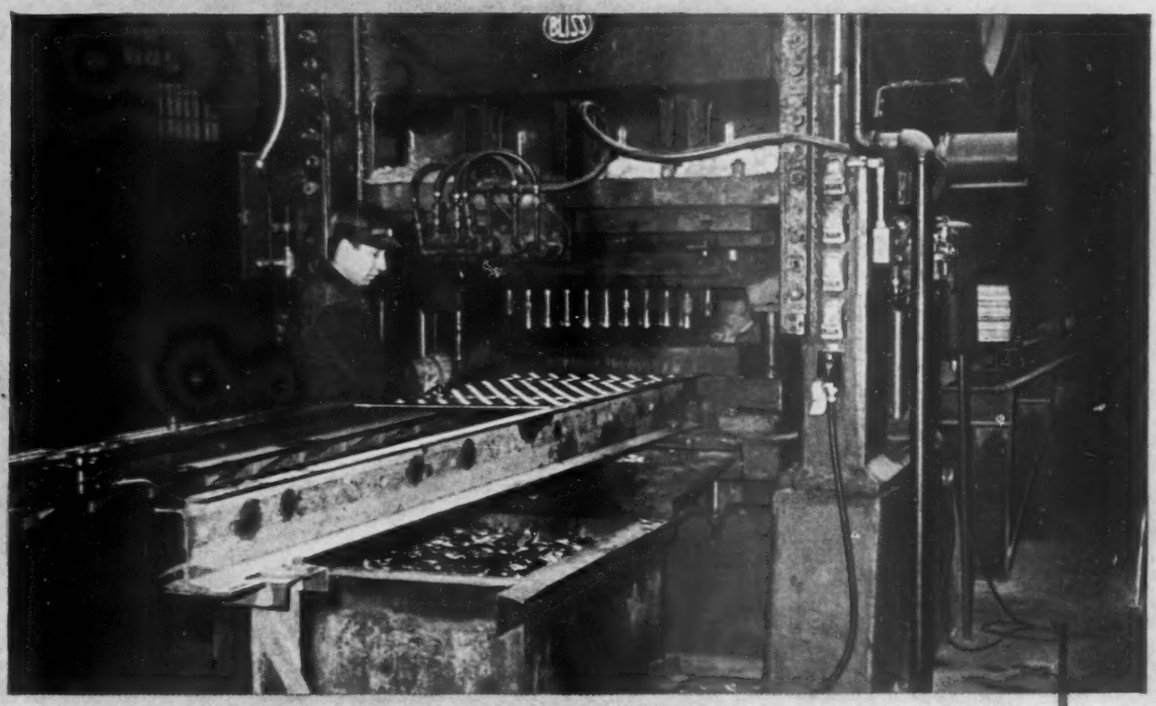


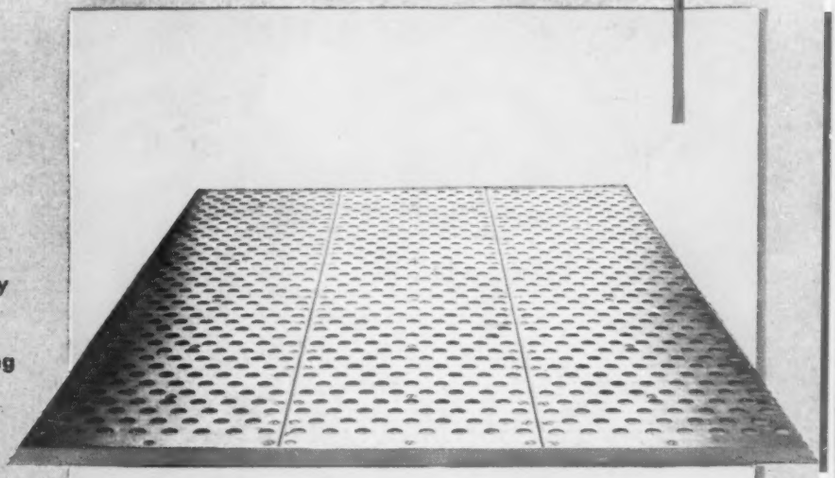
A METAL FLOOR PROTECTOR PROVES THE VALUE OF

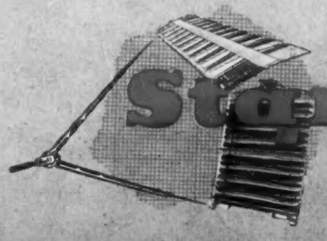
Standard's RAILROAD LABORATORY!

A Metal Floor Protector seems a simple thing to require development in a *laboratory*, but where railroading is concerned, *Standard* is not content to build for *today* alone.

That's why *eighteen years ago*, our railroad laboratory developed the Metal Floor Protector to withstand *today's* new, heavy industrial trucks and floor-chewing materials handling equipment.

Wooden floors used to deteriorate every three or four years—today, floors protected with *Standard's Metal Floor Protector are still in use* . . . meanwhile Standard's laboratory planning is still eighteen years in the *future* . . . protecting its investment in railroading.





Standard

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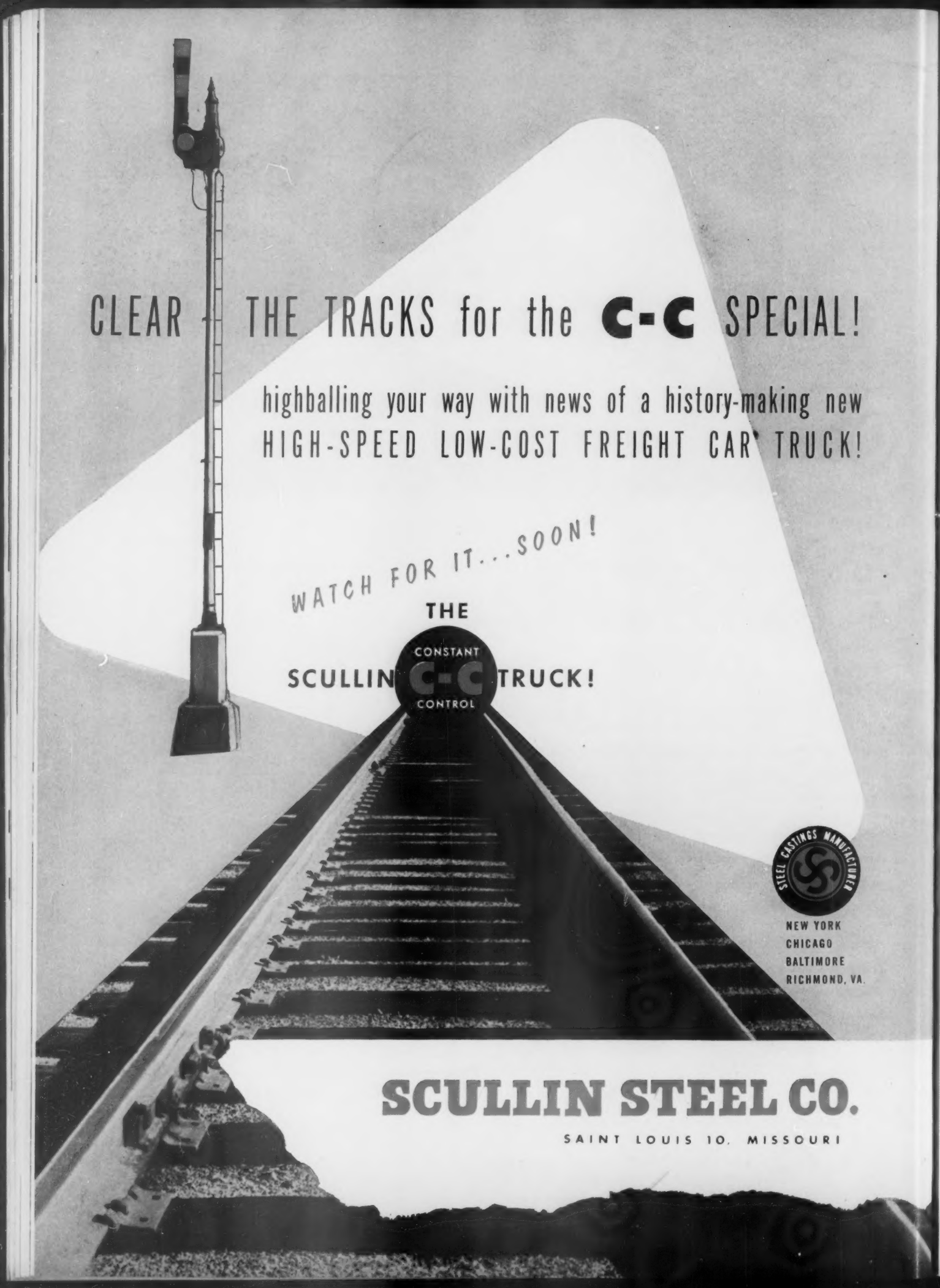
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SAINT LOUIS 10, MISSOURI

R. H. Bescher (Koppers Company), president of the association, at the opening session.

Roy Lumpkin (Rock Island), C. S. Burt (Illinois Central) and P. D. Brentlinger (Pennsylvania).

H. M. Harlow, C. E. Thomas (both Chesapeake & Ohio), and R. R. Clegg (American Lumber & Treating Co.).

H. J. Kreher (Inland Steel Company) and H. R. Duncan (Chicago, Burlington & Quincy).

R. H. Mansfield (American Creosoting Co.), C. D. Turley (Illinois Central) and G. B. McGough (Bond Bros.).

E. R. Rand (Boston & Maine), R. W. Cook (Seaboard Air Line), and Roy M. Edmonds (Railway Tie Association).

A.W.P.A. MEETING RECORDS . . .

Progress in Timber Treatment

Developments in wood preservation, as revealed at annual convention at Cleveland, hold much of interest for railroad men (*Story on page* 86)

WHEN THE RAILROADS EVALUATE FREIGHT TRUCK PERFORMANCE

NATIONAL

ALL-PURPOSE **C-1** FREIGHT TRUCK

FOR IMPROVED OPERATION

EXPERIENCE FROM **85 YEARS SERVICE** TO TRANSPORTATION...

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New centralized facilities to continue mechanical development...research...advanced testing...are creating marked interest to the carriers and related industry.

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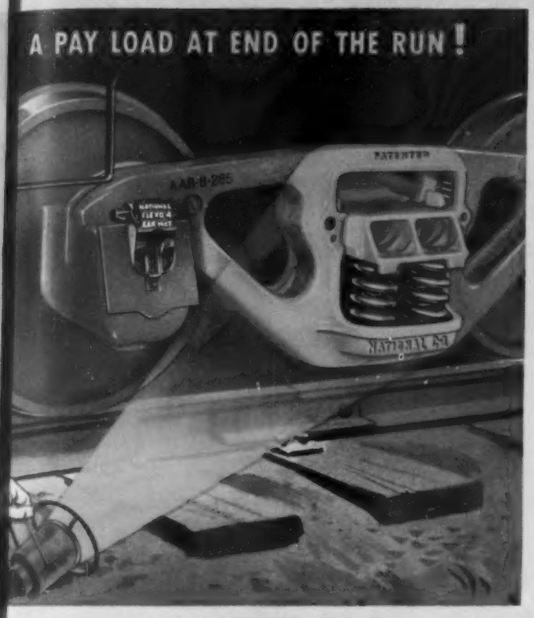
AAR CONVENTION and PAN AMERICAN CONGRESS
PLAN TO SEE
NATIONAL EXHIBIT...SPACE N1 AND 2

FOR THAT BETTER RIDE...



WHERE SHOCKS FADE AWAY

THE RAILROADS WANTED TO KNOW

Data from "ride-tests" by A.A.R.—1948-50 incl.— and statements of official observers are a matter of record.

Proof of design merit and the effectiveness of National C-1 Truck is through its broad recognition— based upon outstanding performance.

ENGINEERED FOR PROGRESS...

THE FRICTION-CONTROL UNIT in the C-1 truck combines advanced engineering principles for progressive "on-rail" operation.

THIS MECHANISM, coupled with frame and bolster construction, is simple in design, with maximum desired control and truck alignment provided for. The rugged cast steel wedges, with large bearing areas positioned by low-stressed wedge springs against hardened steel plates, assures effective results with long life.

SPECIAL DESIGN of spring well, with large size cast lugs, provide proper position of load springs and prevent loss with today's faster speeds and heavier loads.

ADDITIONAL DESIGN FEATURES give distinct advantages of quick wheel change, easy assembly, minimum parts and visual inspection of friction-control unit.

A-7045

CIRCULAR 5150-A AVAILABLE

NATIONAL MALLEABLE and STEEL CASTINGS COMPANY

Cleveland 6, Ohio

COUPLERS • FREIGHT TRUCKS • YOKES • FRICTION AND RUBBER DRAFT GEARS • JOURNAL BOXES AND LIDS

NATIONAL EST. 1868 PRODUCTS and TECHNICAL SERVICES

E. H. Wicks, K. R. Parker (both Joslyn Manufacturing & Supply Co.), and G. E. Olson (Dow Chemical Company).

P. R. Hicks (Service Bureau, A.W.P.A.), and G. G. Crawford (American Creosoting Company).

To appreciate the importance of treated wood to the railroad industry, and that the technology of timber treatment is in a constant state of flux, one need only to have been present at the forty-ninth annual meeting of the American Wood Preservers' Association, at the Hotel Cleveland in Cleveland, April 28 through 30.

Fourteen addresses and 26 committee reports were presented at the convention. There were five technical sessions each of which had a session chairman and a session coordinator. Three of the session coordinators were railroad men, including A. S. Daniels of the Texas & New Orleans (Southern Pacific lines in Texas & Louisiana), Houston; B. D. Howe, chief tie and lumber inspector of the Louisville & Nashville, Louisville, Ky.; and G. B. Campbell, tie and timber agent of the Missouri Pacific, St. Louis. In addition, W. F. Dunn, Sr., tie and timber agent of the Southern, Washington, D. C., acted as chairman of one of the sessions. All sessions were under the general supervision of R. H. Bescher, manager of technical department, Koppers Company, Orrville, Ohio.

Advantages of Incising

The incising of hardwood ties "merits immediate and serious consideration by users not taking advantage of this means of obtaining more for each dollar expended on ties," declared E. Roger Rand, tie and timber agent of the Boston & Maine, Boston. The practice of incising hardwood ties was started on the B&M, according to Mr. Rand, in order to use species of wood native along its right-of-way. While oak ties are relatively scarce in northern New England, mixed northern hardwoods are relatively plentiful, according to Mr. Rand. For this reason, the B&M "faced a decision of obtaining practically all ties consumed off line if insisting on oak, or choosing to use certain species of mixed hardwoods."

The hardwoods referred to by Mr. Rand are designated in the A.R.E.A. specifications as Group "Tc," which includes beech, birches, cherries, gums and hard maples. Although available data indicate that long service life can be obtained from such ties it has been the experience of a great many railroads, he said, that early failures have occurred as the result of checking beneath the treated zone, which causes the tie to fail from center rot and crushing under the rail bearings.

Mr. Rand went on to explain that early failure of "Tc" hardwood ties could be prevented if the large serious checks in the faces could be eliminated and deeper penetration of the preservative obtained. To achieve these ends the B&M has been incising a portion of its "Tc" hardwood ties prior to seasoning for approximately 15 years and all hardwood ties since 1949. "It has been our experience," said Mr. Rand, "that incising has materially reduced serious checking in faces of these ties and has increased the average depth of penetration into the heart faces. Since the cost of incising represents only about three per cent of the cost of the tie, and a modest estimate of added average tie life through incising could not be placed under 10 per cent, it is evident that a worthwhile saving is made. In addition to the saving of the tie itself, savings would be made in labor through less frequent tie renewals."

Laminated Members in Bridges

Developments in connection with preservative-treated laminated timber received considerable attention during the meeting. The reports of the Information and Technical Development committees dealt with the performance of several installations of glued, laminated timbers in railroad service. The structures inspected included a bridge on the Southern at Alexandria, Va., containing laminated Southern pine timbers, a bridge on the Texas & Pacific in which the stringers are of laminated, creosoted Southern pine, and a bridge on the Atlantic Coast Line which includes stringers of laminated wood treated, after gluing, with Wolman salts or creosote, and also stringers made by treating the laminations with Wolman salts or creosote and gluing them afterwards.

The report on the Southern bridge indicated that there was no evidence of delamination or deterioration. The members in the T&P bridge not only showed no positive evidence of delamination, but checking was reported to be generally less severe than in adjacent solid stringers. The report on the ACL bridge was equally favorable.

"The service experience to date," said the report. "with laminated timbers treated following gluing, as well as the results of extensive laboratory tests, show rather conclusively that well-made resorcinol and phenolformaldehyde glue lines are not deteriorated by commercially used preservatives and fire-retardant chemicals. However, the problem of obtaining deep penetration and good distribution of preservatives in laminated timbers has not been completely solved and requires added attention. Because of its importance, there has been continued interest in treating laminations prior to gluing."

Technological developments in the production of pre-

. . . something missing?

This was the fellow who invented the wheel. It was a great invention . . . but he forgot something. He made it go . . . *but he didn't know how to stop it!*

The high speed of America's railroad trains is governed by their ability to reduce that speed quickly and comfortably.

Last year, America's railroads totaled up an amazing 35 *billion* passenger miles. They did it with speed, safety and comfort, because with the power to go, they have the power to stop.

Modern railroad locomotives and cars require different kinds of braking equipment. And for these different requirements, Westinghouse Air Brake produces a complete line of brakes and auxiliary devices. For example, there are special braking systems for road locomotives, yard locomotives, high-speed passenger cars, conventional passenger cars, freight cars.

Each is intended to do a specific job . . . and do it better. Each is a product of "years ahead" Westinghouse Air Brake research. Each is made to assure the enviable safety records and the smooth riding qualities of America's great railroad system.

Westinghouse Air Brake COMPANY

AIR BRAKE DIVISION **WILMERDING, PA.**

L. C. Collister (Santa Fe) and K. T. Scudder (Taylor-Colquitt Company).

D. B. Mabry and John S. Penney (both T. J. Moss Tie Company).

servative-treated laminated timbers were described in a comprehensive report by representatives of the Forest Products Laboratory, Madison, Wis. The report showed how developments have been accelerated by improvements in glues. It was stated that the gluing of treated wood has definite advantages in that it may permit production of large members thoroughly impregnated, but, on the other hand, the treatment of laminated timbers after gluing makes it possible to apply the preservative after all cutting, boring and other framing have been completed and thereby helps to assure a complete protective coating of the surface.

What About Packaged Lumber?

The possible savings and advantages of handling forest products in packaged units, such as when bundled by steel strapping, were discussed by Frank E. Houck, manager of sales, Steel Strapping Division, Brainard Steel Division, Sharon Steel Corporation. Mr. Houck stated that packaging lumber in units has been discussed with the maintenance-of-way personnel of many railroads, and that the "general opinion expressed has been favorable and preparations are under way for adoption of this method of handling." The material is strapped into unit packages to facilitate handling, and tests are underway, according to Mr. Houck, to determine the feasibility and possible advantages of treating lumber in packaged units.

One test of the unit method of handling forest products involved stock for running boards of freight cars, which was given a salt treatment. The material was received at the treating plant and, using steel strapping, was packaged in cube shape, complete with stickers, and placed on the yard for seasoning. After seasoning and treatment a final check of the strapping showed that it was "tight enough for crane or fork-truck handling and for shipment without need of applying new straps."

With ties—cross, turnout and crossover—a package unit has been developed and used, according to Mr. Houck. "Crossties have been bundled on the tram after treatment by means of tight and flat bands. Banding after treatment is necessary so that proper penetration is obtained—particularly with the tight-banded units. These units are then handled by the bands. The saving in man-hours is not as great when tight bands are used as when employing the slack-bend method."

C. Miles Burpee, vice-president of Simmons-Boardman Publishing Corporation, discussed "The Neglected Market." In contrast to the short-lived untreated ties of 50 years ago, when annual tie renewals exceeded 300 to the mile, he noted that for the five-year period ending with 1951, the average annual tie renewals on Class I roads amounted to only 99 per mile, reflecting an average service life of more than 30 years.

Mr. Burpee went on to show that the amount of treated lumber used in residential and industrial construction in this country is almost infinitesimal compared with the total annual lumber consumption. He put the latter figure at 23.8 billion board-feet. He pointed out that the annual sales of treated lumber of the 26,000 retail lumber dealers amount to less than 5 per cent of their total lumber sales. "As the last frontier, the light construction industry market offers vast possibilities in the form of new business and great opportunities for the conservation of our national lumber supply," he declared.

Utilization, Service Records

Among various reports of the Utilization and Service Records committees, that of Committee U-3, Tie Service Records, contained a comprehensive summary of available tie service-life records. The committee expressed the opinion that this summary, giving information from various railroads with widely varying climatic, traffic, and operating conditions, "will serve as a ready reference to users as to what service can be expected from the various species of wood and the various preservative treatments." A similar summary of experience with treated poles was presented by Committee U-4, Pole Service Records.

Committee C-15, Railroad Car Lumber, tabulated the railroad car material treated during 1952 for use on 25 railroads. Material treated for this purpose on these roads totaled 14,644,156 bd. ft.

Recommendations involving standards and tentative standards of the association were made by the various committees. All of these were approved.

In the election of officers P. D. Brentlinger, forester of the Pennsylvania, Philadelphia, was advanced from first vice-president to president; I. C. Miller, vice-president, T. J. Moss Tie Company, St. Louis, from second vice-president to first vice-president; and A. S. Daniels was elected second vice-president. Newly elected members of the Executive Committee are B. D. Howe and P. B. Mayfield, technical consultant, Barrett Division, Allied Chemical & Dye Corp., New York. W. A. Penrose, was reelected secretary-treasurer.

Railway Officers

EXECUTIVE

As announced in *Railway Age* March 30, **Dwight A. Fawcett** has been named resident vice-president of the NEW YORK CENTRAL at Chicago, and **Charles F. Wiegele** has been appointed assistant to vice-president at Cincinnati. Mr. Fawcett was born at Rushsylvania, Ohio, December 2, 1892, and received his higher education at Ohio University. He entered the service of the Cleveland, Cincinnati, Chicago & St. Louis (NYC system) in 1908 and served in various capacities in the operating department at Terre Haute,

Dwight A. Fawcett

Ind., Indianapolis and Springfield, Ohio, until 1939, when he became assistant superintendent at Springfield.

Charles F. Wiegele

He was appointed superintendent there in January 1943; assistant to general manager at Cincinnati in 1944; assistant general manager at Indianapolis in September 1945; manager of freight transportation at New York in August 1946; general manager of the Big Four district at Cincinnati in August 1947; and assistant vice-president, Lines West, at Chicago in March 1950.

Mr. Wiegele was born at Carthage, Ohio, May 17, 1889, and entered railroad service in May 1904 as yard clerk with the NYC at Ivorydale, Ohio. He was appointed assistant trainmaster at Bellefontaine, Ohio, in 1914; terminal trainmaster in July 1923; trainmaster at Cincinnati in August 1935; assistant to assistant general manager at Indianapolis in June 1939; assistant to general manager of the Chicago River & Indiana and the Indiana Harbor Belt at Chicago in 1940; assistant general manager of those roads in October 1941; assistant to vice-president, NYC Lines West, in July 1943; and general manager, Lines West, November 15, 1945. In his new position Mr. Wiegele will be in charge of the Central's various general interests in the Cincinnati area, and also will be concerned with the road's coal properties in southern Ohio and West Virginia.

As *Railway Age* announced April 6, **Kenneth Shealy** has been elected vice-president, finance and accounting, while continuing as treasurer and assistant secretary, of the ATLANTA & ST. ANDREWS BAY. Mr. Shealy entered railroad service with the Macon,

Kenneth Shealy

Dublin & Savannah at Macon, Ga., in 1908, but within a short time left that road to join the traffic department of the Central of Georgia in the same city. With the CofG he served successively in the roadmaster's and superintendent's office; as division accountant; as traveling auditor and chief traveling auditor, and as chief clerk to auditor disbursements. He joined the A&StAB in 1937 as auditor, and was most recently comptroller, treasurer and assistant secretary at Dothan, Ala.

As reported in *Railway Age* April 20, page 106, **Vernon L. Nelson** has been appointed to the new position of assistant vice-president—management service of the NEW YORK CENTRAL SYSTEM at New York. Mr. Nelson was born at Aurora, Ont., Canada, and attended Ohio State University before joining the NYC at Columbus, Ohio, in 1910 as an engineering department rodman. After various promotions there, he became valuation engineer of the Ohio Central lines in 1928 and head

Vernon L. Nelson

accounting engineer at Detroit in 1937. Mr. Nelson later served as assistant auditor of disbursements and assistant to comptroller at Detroit, becoming assistant comptroller in charge of disbursements accounting in 1947. He was transferred to New York as assistant comptroller in May 1949.

As reported in *Railway Age* March 30, **James L. Cranwell** has been appointed vice-president of the PENNSYLVANIA at New York; **J. Benton Jones** has been named vice-president, real estate and taxation, at Philadelphia, and **Allen J. Greenough** has been

James L. Cranwell

appointed vice-president, Eastern region, at Philadelphia. Mr. Cranwell was born at Shreveport, La., October 31, 1905; was graduated from the University of South Carolina (C.E., 1926), and entered railroad service in July 1926 as rodman on the PRR. After serving as assistant supervisor

(*Continued on page 92*)

guarantees the high quality

# of Edgewater ROLLED STEEL Wheels

Close inspection guards the quality of Edgewater Rolled Steel Wheels.

At every step of manufacture, from the open hearth furnaces where the temperature of molten steel is checked by an immersion thermocouple shown above, to the painstaking examination that every finished wheel must pass before shipment, modern precision checking methods are employed. Only in this way can we be sure that Edgewater Wheels meet completely the rigid requirements of railroad service.

Experienced inspectors carefully check dimensions and examine the machined surfaces of every Edgewater wheel.

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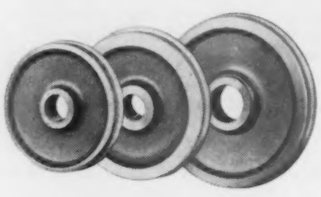
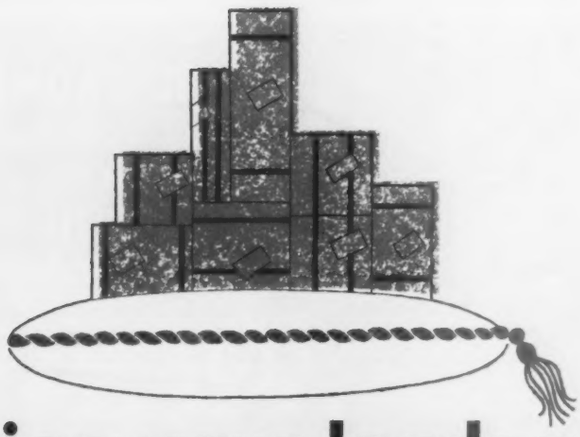
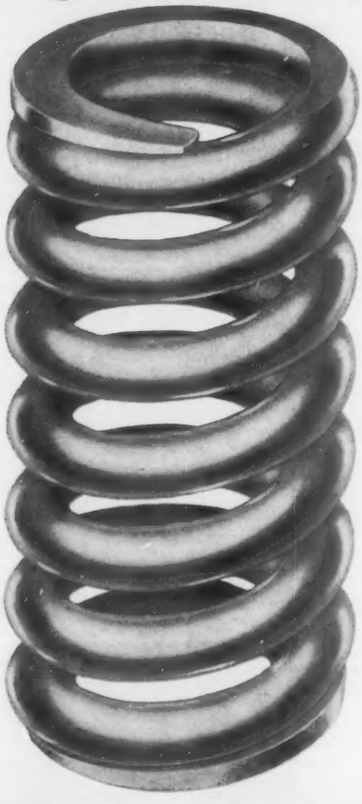




Cushion your loads with



"RAILWAY" SPRINGS

Long travel springs made by Railway Steel-Spring Division cushion heavy jolts and shocks, materially reduce lading damage claims.

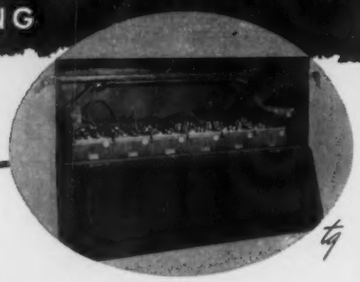
These rugged, heavy coil springs cut wear and tear on your rolling stock, and lower the maintenance costs of your roadbed, too.

Designed and fabricated by one of the oldest spring manufacturers in the country, *"Railway"* springs are positive aids in increasing operating profits. Complete information is available from your Alco sales representative in New York, Cleveland, Chicago, Richmond, St. Louis, St. Paul, San Francisco.

Railway Steel-Spring Division

AMERICAN LOCOMOTIVE COMPANY

NICKEL CADMIUM BATTERY
FOR POSITIVE
DIESEL LOCOMOTIVE
STARTING



In daily use by New York Central for the toughest starting job—switching service.

Because of their rugged mechanical and electrical characteristics, NIFE batteries maintain high starting power throughout their entire long lives. Many NIFE diesel starting batteries have been in continuous successful operation for 15 to 20 years.

"LONGER LIFE WITH NIFE"

NIFE

NIFE DIESEL STARTER BATTERIES PROVIDE YOU WITH THE FOLLOWING SALIENT FEATURES:

- Proven extra-long life
- Steel construction throughout
- Greater resistance to shocks and vibrations
- Extremely low internal resistance
- Superior starting ability
- Immune to excessive discharges and short circuits
- No sulphating or similar disintegrating processes
- Not sensitive to overcharging
- Low operating and maintenance costs

NIFE BATTERIES ALSO USED FOR:
• Car lighting • Air conditioning • Signaling • Electric trucks

NIFE INCORPORATED • COPIAGUE • LONG ISLAND • NEW YORK

(Continued from page 89)
track, supervisor track, assistant division engineer, division engineer and division superintendent, he was appointed general superintendent of the Lake division in January 1945, transferring to the Western Pennsylvania division in November 1949. He became assistant general manager, Central region, at Pittsburgh in November 1950 and assistant vice-president at New York in January 1952.

Mr. Jones, born at Danville, Ill., March 22, 1905, and graduated from the University of Illinois, began his career with the PRR in April 1927 as assistant on engineer corps, later serving as assistant supervisor track, supervisor track, division engineer, assistant superintendent freight transportation, and superintendent of the Cleveland, Indianapolis and New York divisions. He became general superintendent. Eastern Ohio division, in 1946; general manager, New York zone, in 1948; general superintendent, Northwestern division, in May 1949; general superintendent transportation, Central region, in November 1950, and general manager, Western region, in June 1951.

J. Benton Jones

Allen J. Greenough

Mr. Greenough was born at San Francisco September 20, 1905, and attended Union College (B.S. in C.E., 1928). He entered railroad service in 1928 with the Pennsylvania as assistant on engineering corps and subsequently served as assistant supervisor track, supervisor track and division engineer. Mr. Greenough was appointed superintendent, Wilkes-Barre division, in 1945; superintendent freight transportation at Chicago in 1946; superintendent, Maryland division, in January 1947; general superintendent, Eastern Pennsylvania division, in June 1948; general superintendent transportation, Eastern region, in November 1950; assistant general manager, Eastern region, in June 1951; and general manager, Central region, in December 1951.

FINANCIAL, LEGAL & ACCOUNTING

J. R. Warner, assistant to vice-president in charge of accounting and freight claims of the BALTIMORE & OHIO, has been appointed assistant comptroller, in charge of general accounts, and **J. J. Luddy,** chief clerk to assistant comptroller, has been named assistant to comptroller, both at Baltimore.

OPERATING

As reported in *Railway Age* April 6, page 106, **H. H. Vaughn** has been appointed superintendent of the Fort Wayne (Ind.) division of the PENNSYLVANIA and **Nathan L. Fleckenstine** has been named superintendent of the Panhandle division at Pittsburgh. Mr. Vaughn, a graduate of Purdue University, joined the PRR as assistant on the engineer corps of the Philadelphia division in 1934. He served in that capacity and as assistant track supervisor at various points in the eastern region until 1940 when he was advanced to assistant trainmaster of the Conemaugh division. He transferred to the Panhandle division in 1941 and later served as passenger trainmaster of the Eastern division. He was promoted to trainmaster of the Toledo division in 1946 and served in that capacity on the Indianapolis and Columbus divisions. He became assistant superintendent of the Southwestern division at Indianapolis in January 1952.

H. H. Vaughn

Nathan L. Fleckenstine

Mr. Fleckenstine was born at Orangeville, Pa., on November 4, 1911, and was graduated from Carnegie Institute of Technology (B.S. 1933). After his graduation, Mr. Fleckenstine served on a surveying corps for both the Pennsylvania State Highway Department and the Pennsylvania State Forestry Department. He joined the PRR in April 1934 as assistant on an engineer corps at Mansfield, Ohio, and later served as assistant track supervisor and track supervisor at various points. On January 1, 1947, Mr. Fleckenstine was appointed assistant division engineer on special duty in the office of superintendent of stations and transfers, to study legislation in connection with the highway trucking industry. He became assistant division engineer at Baltimore on June 1, 1947, and was appointed division engineer at Grand Rapids, Mich., on September 1, 1947, transferring to Baltimore on July 1, 1948. Mr. Fleckenstine has been serving as division engineer on special duty in the office of vice-president, Eastern region, since February 1, 1952.

As reported in *Railway Age* March 30, **Buford W. Tyler** has been named assistant general manager of the Central region of the PENNSYLVANIA at Pittsburgh. Mr. Tyler was born at Shelbyville, Ill., on April 14, 1903, and attended Rose Polytechnic Institute (B.S. 1923). He entered railroad service on December 1, 1925, as assistant on an engineer corps on the St. Louis division of the PRR and subsequently served as assistant supervisor on the Trenton, Philadelphia, Maryland and Middle divisions; supervisor at Sunbury, Cumberland Valley, Philadelphia and Pittsburgh; assistant division engineer at New York and division engineer at various points. Mr. Tyler was appointed superintendent of the Renovo division in January 1945, transferring to the Panhandle division at Pittsburgh on March 1, 1948, and to the Pittsburgh division at Pittsburgh in December 1951.

Buford W. Tyler

ENGINEERING

T. K. Peavy, assistant engineer, construction department, of the SOUTHERN at Washington, D. C., has been appointed acting engineer in charge of Norris Yard at Birmingham, Ala.

Re-usable fir plywood forms cut application time and costs by 25% —form smooth, fin-free concrete

ON BUILDINGS, bridges, viaducts—fir plywood concrete form panels cut application time and costs by up to 25%. They're light, strong, rigid. Easy to fabricate into cost-cutting built-up form sections. Re-use cuts costs, too. Contractors report 10-15 re-uses with Interior PlyForm, twice as many with Exterior PlyForm and new overlay panels. Plywood-formed concrete requires far less finishing. Big panels mean fewer joints, less leakage . . . smoother, better-looking concrete. For full details write Douglas Fir Plywood Association, Tacoma, 2, Washington.

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Industry trademarks are your guide, guard and assurance of DFPA quality-tested plywood

These trademarks identify quality-tested fir plywood manufactured especially for concrete form work. *Interior PlyForm* (highly moisture-resistant glue) gives multiple re-use. *Exterior Plyform* (100% waterproof glue) gives maximum re-use.

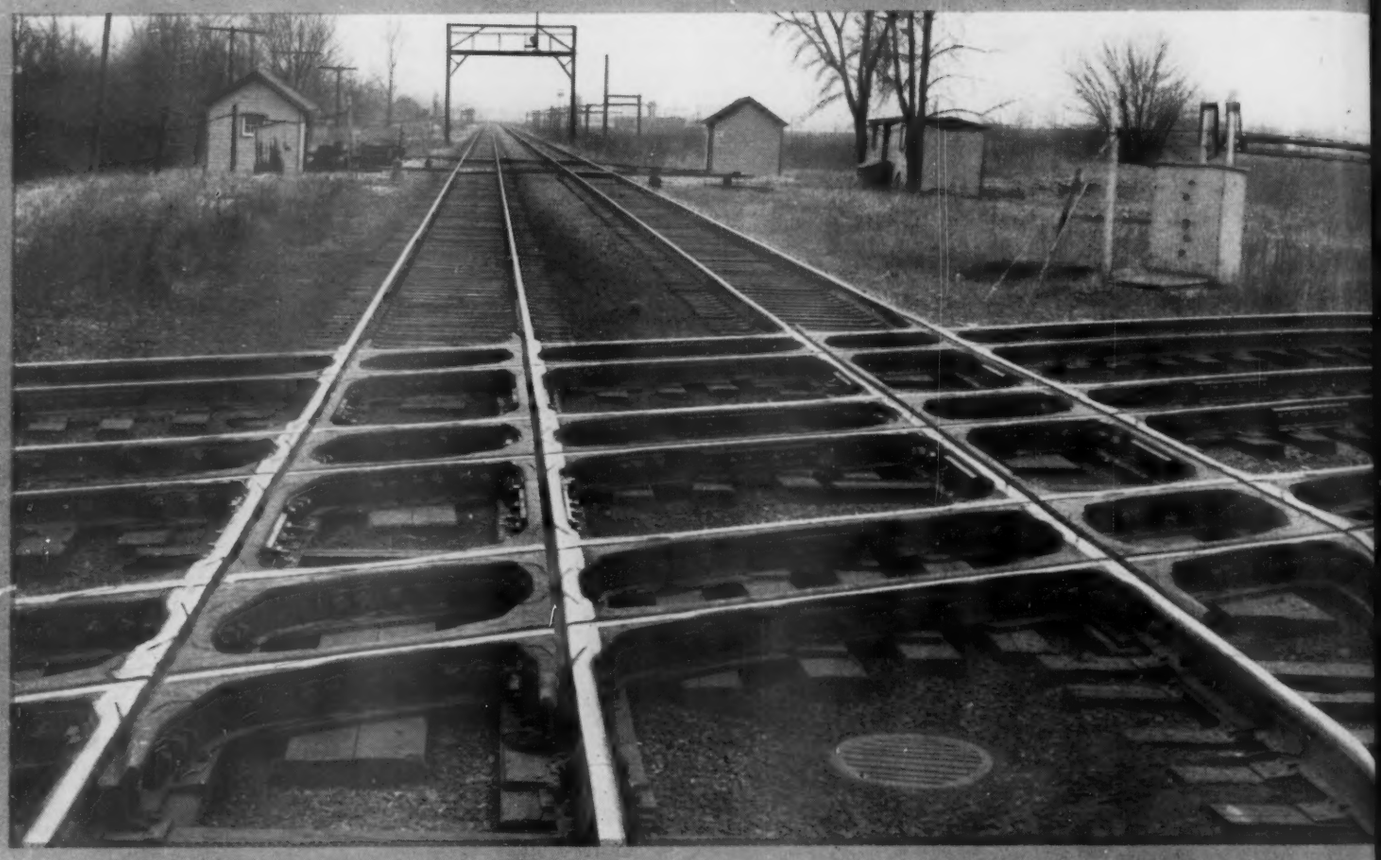
Other panels for maximum re-use plus smoothest concrete surfaces, include plastic-surfaced and hardboard faced fir plywood; identified by "star and link" industry hallmark of quality.

PLYFORM EXT-DFPA

PLYFORM

There's a type and grade of fir plywood for every use

DEPTH HARDENED Manganese Steel



Greater resistance to wear -- smoother riding -- greater strength and safety -- lower maintenance costs - PATENTED

DEPTH HARDENED MANGANESE STEEL CROSSINGS were introduced in 1936 by the RAMAPO AJAX DIVISION of the AMERICAN BRAKE SHOE COMPANY who since then have supplied hundreds of crossings of this type that have established enviable service records by their outstanding performance. The RACOR method of depth hardening has assured a greater resistance to wheel wear and smoother riding and has been a large factor in lowering crossing maintenance costs during those fifteen years.

RACOR depth hardening is a special process that provides the initial work hardening to manganese steel crossing castings in the shop prior to their installation in track. A Brinnell hardness in excess of 400 is attained that defers the flowing of the metal at the corner intersections and makes possible an increase of over thirty per cent in the service expectancy of manganese crossings.

The greater structural strength of the integral base design assures longer life for crossing castings. It reduces flangeway cracking and holds the castings together even when this occurs.

We are continually striving through RACOR field engineering and BRAKE SHOE laboratory research to produce the very best in crossings and other track work specialties to meet the most exacting demands of today's traffic problems.

RACOR INTEGRAL BASE DEPTH HARDENED construction can be supplied in SOLID and INSERT A.R.E.A. manganese steel crossing designs.

WRITE FOR DESCRIPTIVE FOLDER

el Cro

GRIND TO
SHARP EDGE

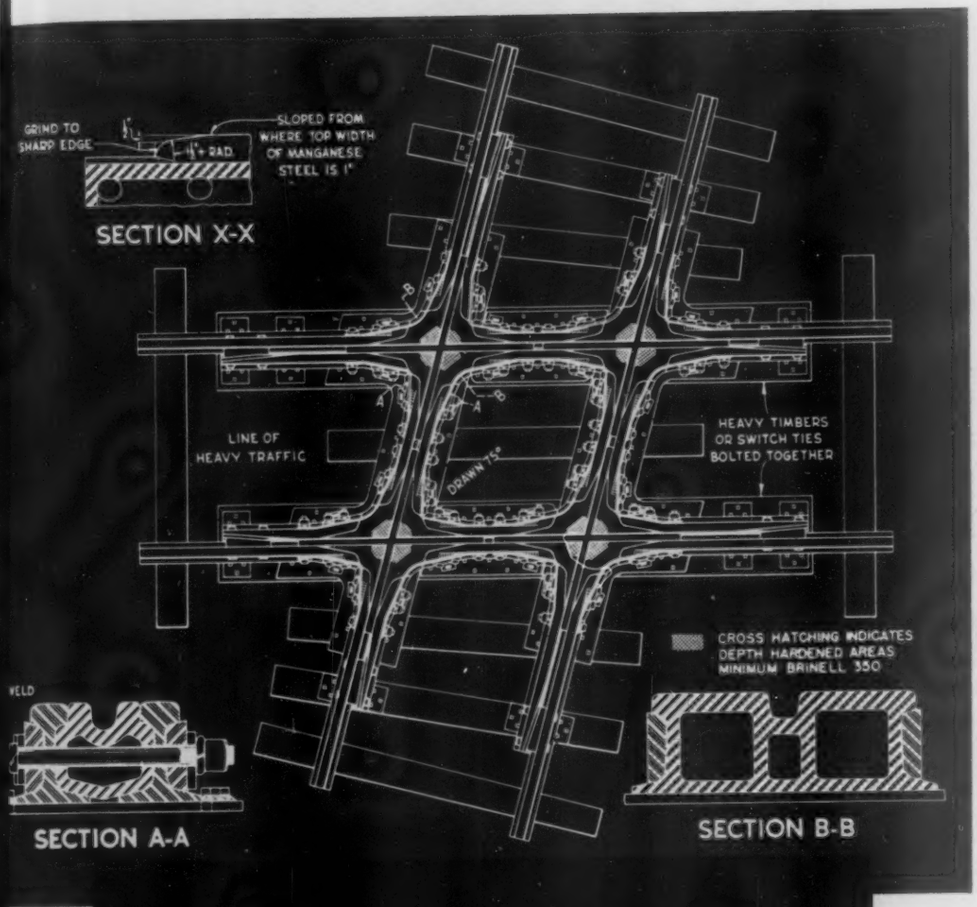
SECTIO

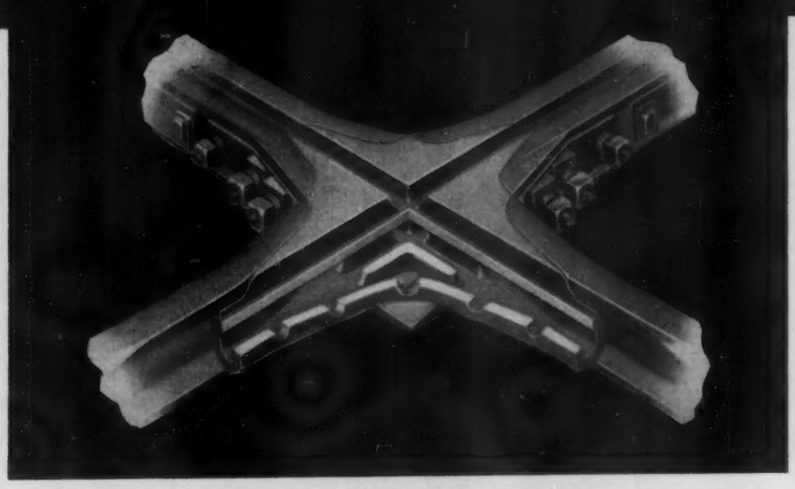
WELD

SECTION A-

AMERICAN

el Crossings SINCE 1936


GRIND TO SHARP EDGE
4"± RAD.
SLOPED FROM WHERE TOP WIDTH OF MANGANESE STEEL IS 1"
SECTION X-X
LINE OF HEAVY TRAFFIC
DRAWN 75°
HEAVY TIMBERS OR SWITCH TIES BOLTED TOGETHER
CROSS HATCHING INDICATES DEPTH HARDENED AREAS MINIMUM BRINELL 350
WELD
SECTION A-A
SECTION B-B



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Depth Hardened

America's most complete line of track specialties

- RACOR STUDS
- RACOR TIE PADS
- AUTOMATIC SWITCH STANDS
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- SAMSON SWITCH POINTS
- SWITCH POINT LOCKS
- RAIL LUBRICATORS
- DEPTH HARDENED CROSSINGS
- REVERSIBLE MANGANESE STEEL CROSSINGS
- MANGANESE STEEL GUARD RAILS

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Plants: Chicago, Ill.; Chicago Heights, Ill.; E. St. Louis, Ill.; Buffalo, N. Y.; Superior, Wis.; Pueblo, Colo.; Los Angeles, Cal.; Niagara Falls, Ont., Can.

Freight Operating Statistics of Large Railways — Selected Items

	Region, Road and Year		Miles of road operated	Train-miles	Locomotive Miles: Principal and helper	Locomotive Miles: Light	Car Miles: Loaded (*thousands*)	Car Miles: Per cent loaded	Ton-miles (*thousands*): Gross excl.locos. & tenders	Ton-miles (*thousands*): Net rev. and non-rev.	Road-locos. on line: Serviceable: Unstored	Road-locos. on line: Serviceable: Stored	Road-locos. on line: B.O.	Road-locos. on line: Per cent B.O.
New Eng. Region	Boston & Maine	1952	1,668	264,998	271,635	11,306	9,643	65.5	625,718	247,288	83	4	13	13.0
		1951	1,690	263,907	271,258	12,432	9,448	69.8	602,480	257,972	84	3	14	13.9
	N. Y., N. H. & Htfd	1952	1,764	308,259	308,684	18,909	11,497	69.9	721,081	313,644	93	..	4	4.1
		1951	1,765	288,837	289,072	23,944	10,456	68.8	670,353	295,598	91	..	4	4.2
Great Lakes Region	Delaware & Hudson	1952	793	211,083	218,007	11,110	9,564	65.6	674,996	341,872	27	48	23	23.5
		1951	793	244,499	281,436	21,299	10,435	71.5	735,039	400,122	103	20	30	19.6
	Del., Lack. & Western	1952	962	277,803	294,295	23,683	12,202	67.2	811,020	361,162	71	4	6	7.4
		1951	964	272,569	292,666	31,003	11,852	69.6	788,828	363,165	80	5	7	7.6
	Erie	1952	2,237	575,422	579,973	24,922	31,288	65.6	1,983,612	792,804	173	..	2	1.1
		1951	2,242	593,904	601,979	31,370	31,468	66.0	2,044,621	858,564	169	11	15	7.7
	Grand Trunk Western	1952	952	271,203	275,630	2,931	8,487	60.1	621,953	263,163	61	1	13	17.3
		1951	952	257,685	264,114	2,171	8,173	63.7	565,367	246,139	53	..	14	20.9
	Lehigh Valley	1952	1,202	223,695	227,444	7,798	10,529	64.5	717,380	319,241	31	1	2	5.9
		1951	1,207	242,463	250,221	15,363	11,911	69.3	765,035	352,758	38	5	5	10.4
	New York Central	1952	10,668	2,723,391	2,801,407	111,063	101,304	58.1	7,464,705	3,206,645	776	70	214	20.2
		1951	10,675	2,842,573	2,993,885	156,128	101,408	62.3	7,314,025	3,344,296	878	90	339	25.9
	New York, Chic. & St. L.	1952	2,160	784,957	814,522	7,864	28,185	60.6	2,076,672	858,704	198	2	47	19.0
		1951	2,161	794,641	813,070	9,959	28,772	64.7	2,037,772	907,966	214	8	36	14.0
	Pitts. & Lake Erie	1952	221	78,875	80,951	45	3,409	65.6	289,410	175,215	35	5	9	18.4
		1951	221	83,153	86,082	312	3,513	63.4	294,644	176,960	34	3	14	27.5
	Wabash	1952	2,381	503,805	509,074	7,815	21,186	66.2	1,369,078	545,781	103	25	35	21.5
		1951	2,381	493,249	501,374	7,702	20,158	70.0	1,294,732	566,723	114	17	30	18.6
Central Eastern Region	Baltimore & Ohio	1952	6,081	1,607,408	1,795,556	169,272	62,948	61.9	4,701,986	2,241,043	545	23	162	22.2
		1951	6,082	1,706,328	1,976,937	218,302	64,483	61.8	4,851,113	2,396,731	607	47	192	22.7
	Central of New Jersey	1952	411	70,343	70,625	3,386	2,561	65.0	191,128	98,612	32	1	2	5.7
		1951	412	73,270	73,696	3,133	2,632	66.5	196,676	104,130	38	1	4	9.3
	Central of Pennsylvania	1952	207	60,269	65,183	8,485	2,388	63.7	183,126	95,363	32	2	7	17.1
		1951	208	66,370	71,386	10,581	2,575	69.4	190,228	104,202	32	3	6	14.6
	Chicago & Eastern Ill.	1952	868	133,428	133,428	2,936	5,277	64.1	371,291	178,572	27	..	1	3.6
		1951	868	128,238	128,238	2,800	4,634	68.3	314,987	156,859	27	..	1	3.6
	Elgin, Joliet & Eastern	1952	236	95,650	96,374	140	3,110	63.0	250,736	133,722	41	..	1	2.4
		1951	238	93,921	95,183	42	3,308	66.4	262,175	145,092	43	..	1	2.3
	Pennsylvania System	1952	9,945	3,090,664	3,314,469	294,950	117,484	60.2	8,723,589	3,957,498	1,020	26	393	27.3
		1951	10,033	3,054,992	3,304,925	342,065	119,896	63.6	8,681,429	4,145,366	1,108	104	370	23.4
	Reading	1952	1,316	370,156	376,189	19,048	13,511	60.8	1,108,542	581,566	171	13	21	10.2
		1951	1,321	399,295	409,722	25,790	14,374	65.3	1,149,821	637,168	186	20	43	17.3
	Western Maryland	1952	831	196,505	231,750	28,047	6,632	61.6	559,866	312,293	135	..	12	8.2
		1951	837	195,750	232,471	27,655	6,790	61.6	570,058	318,076	128	3	20	13.2
Pocahontas Region	Chesapeake & Ohio	1952	5,037	1,294,467	1,336,737	42,431	55,433	54.8	4,855,288	2,626,817	425	53	167	25.9
		1951	5,043	1,477,071	1,551,548	69,054	62,100	55.5	5,549,400	3,087,547	487	2	238	32.7
	Norfolk & Western	1952	2,113	675,887	712,054	48,965	29,486	56.8	2,675,870	1,425,619	232	18	23	8.4
		1951	2,113	781,907	834,168	70,406	34,434	57.6	3,134,434	1,713,983	256	6	22	7.7
Southern Region	Atlantic Coast Line	1952	5,368	855,948	855,966	10,188	25,676	56.0	1,921,069	836,016	280	16	17	5.4
		1951	5,452	854,767	855,501	13,268	24,973	57.2	1,873,832	839,614	358	25	47	10.9
	Central of Georgia	1952	1,754	201,373	208,671	2,805	7,157	64.2	499,027	225,954	73	16	1	1.1
		1951	1,765	243,012	245,700	4,343	7,268	66.4	498,561	229,572	92	6	7	6.7
	Gulf, Mobile & Ohio	1952	2,718	326,823	326,823	258	16,494	67.8	1,116,307	518,029	85	..	4	4.5
		1951	2,830	323,033	323,033	204	15,751	70.2	1,033,568	490,217	83	..	3	3.5
	Illinois Central	1952	6,539	1,620,499	1,626,629	54,345	51,602	59.2	3,891,921	1,752,730	563	6	72	11.2
		1951	6,539	1,635,904	1,644,138	57,039	52,810	61.7	3,917,236	1,818,515	580	3	79	11.9
	Louisville & Nashville	1952	4,729	994,503	1,047,427	24,604	33,077	60.5	2,456,740	1,191,492	263	38	32	9.6
		1951	4,756	1,091,406	1,157,549	30,256	35,235	61.8	2,644,289	1,323,343	310	23	56	14.4
	Nash., Chatt. & St. Louis	1952	1,032	201,263	204,986	3,980	6,123	67.8	405,371	185,386	49	..	4	7.5
		1951	1,032	213,600	217,668	3,790	6,734	70.4	441,557	208,730	47	..	4	7.8
	Seaboard Air Line	1952	4,070	664,945	664,945	3,261	24,743	60.6	1,795,233	781,021	151	68	4	1.8
		1951	4,135	739,207	761,208	2,043	25,374	63.1	1,812,079	802,502	206	59	11	4.0
	Southern	1952	6,263	1,035,290	1,035,333	12,183	30,012	51.8	2,516,449	1,122,361	268	21	5	1.7
		1951	6,264	1,158,611	1,159,424	12,707	40,241	66.2	2,672,947	1,207,344	350	44	78	16.5
Northwestern Region	Chicago & North Western	1952	7,873	750,333	754,713	15,395	29,158	63.7	2,036,521	903,898	270	38	98	24.1
		1951	7,889	796,956	804,523	19,625	28,133	67.8	1,936,611	914,323	292	17	131	29.8
	Chicago Great Western	1952	1,435	142,731	143,203	256	8,347	66.8	553,521	241,034	30	..	4	11.8
		1951	1,441	139,515	139,751	15,631	7,335	69.2	514,337	248,126	31	..	3	8.8
	Chic., Milw., St. P. & Pac.	1952	10,662	1,099,591	1,129,845	37,498	43,199	62.6	2,981,182	1,311,941	345	93	74	14.5
		1951	10,663	1,127,275	1,160,729	45,705	42,176	65.9	2,863,789	1,316,332	385	65	79	14.9
	Chic., St. P., Minn. & Omaha	1952	1,606	189,592	193,633	7,292	5,699	67.7	400,906	189,176	65	..	27	29.4
		1951	1,606	214,026	219,867	10,519	5,623	65.3	404,685	191,038	70	..	37	34.6
	Duluth, Missabe & Iron Range	1952	567	43,814	44,320	1,073	1,097	57.6	90,709	47,722	22	21	26	37.7
		1951	567	57,872	58,224	899	1,467	56.3	130,596	70,044	33	16	26	34.7
	Great Northern	1952	8,291	1,097,717	1,100,491	34,605	38,483	66.4	2,664,794	1,204,181	289	153	62	12.3
		1951	8,307	1,036,188	1,037,577	42,431	35,588	68.5	2,475,025	1,166,457	316	124	72	14.1
	Minneap., St. P. & S. St. M.	1952	4,172	394,847	398,023	2,697	11,758	66.2	766,689	349,561	110	..	14	11.3
		1951	4,173	391,398	394,956	3,595	11,560	65.3	791,229	375,888	109	..	11	9.2
	Northern Pacific	1952	6,585	839,406	871,493	41,831	30,509	64.2	2,179,059	989,468	315	22	66	16.4
		1951	6,591	804,660	834,764	39,879	28,839	69.1	2,025,117	952,267	332	12	67	16.3
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.)	1952	13,072	2,700,484	2,812,602	112,631	110,277	62.6	7,536,945	2,778,208	617	77	112	13.9
		1951	13,096	2,601,569	2,689,311	103,049	104,025	64.6	7,133,252	2,827,960	579	45	159	20.3
	Chic., Burl. & Quincy	1952	8,832	1,229,400	1,240,522	42,306	48,887	62.9	3,351,787	1,448,463	351	15	103	22.0
		1951	8,800	1,187,424	1,202,507	47,552	47,410	65.6	3,288,707	1,515,717	374	29	110	21.4
	Chic., Rock I. & Pac.	1952	7,901	1,013,820	1,016,129	8,749	36,517	60.1	2,658,377	1,088,033	187	28	26	10.8
		1951	7,902	1,017,901	1,031,431	22,379	35,898	62.7	2,610,556	1,124,103	250	6	45	15.0
	Denver & R. G. Wn.	1952	2,333	361,320	395,771	41,727	14,936	68.2	1,070,351	515,244	92	33	28	18.3
		1951	2,333	335,785	370,260	44,015	13,960	70.3	966,122	469,702	116	14	29	18.2
	Southern Pacific	1952	8,058	2,080,271	2,184,955	234,085	85,729	66.4	5,766,724	2,429,260	707	24	143	16.4
		1951	8,082	1,931,081	2,026,161	248,920	82,315	68.6	5,376,292	2,232,195	628	17	173	21.1
	Union Pacific	1952	9,824	2,779,786	2,875,415	189,585	104,419	64.7	7,167,400	3,090,842	641	26	125	15.8
		1951	9,867	2,592,240	2,696,507	192,724	102,365	66.2	6,976,046	3,118,230	637	23	145	18.0
	Western Pacific	1952	1,190	244,272	249,510	23,752	10,910	67.1	745,942	344,570	39	12	6	10.5
		1951	1,190	235,979	240,170	19,377	11,188	70.5	725,438	331,868	36	14	20	28.6
Southwestern Region	International-Gt. Northern*	1952	1,104	173,815	173,815	.....	6,137	62.7	461,933	207,782	50	7	5	8.1
		1951	1,104	187,349	187,349	188	6,466	64.0	468,818	216,529	50	1	14	21.5
	Kansas City Southern	1952	886	171,590	171,590	237	8,898	67.3	623,480	293,790	27	2	6	17.1
		1951	886	178,922	179,042	346	8,903	66.7	626,590	293,403	25	4	10	25.6
	Mo.-Kans.-Texas Lines	1952	3,230	399,884	399,938	4,502	14,724	62.3	976,294	409,570	86	9	7	6.9
		1951	3,230	406,746	408,114	5,534	14,744	65.7	970,094	413,133	86	19	13	11.0
	Missouri Pacific*	1952	6,917	1,267,768	1,272,596	17,003	44,944	61.5	3,220,434	1,392,988	306	11	53	14.3
		1951	6,933	1,295,776	1,310,233	17,685	46,284	63.4	3,275,322	1,445,579	336	4	54	13.7
	Texas & Pacific	1952	1,831	366,923	366,923	1,865	14,253	58.6	1,063,612	391,811	59	1	12	16.7
		1951	1,843	358,521	358,521	12,939	13,928	62.3	992,761	385,601	68	13	47	36.7
	St. Louis-San Francisco	1952	4,567	672,483	672,932	6,502	24,019	61.6	1,694,694	739,024	187	15	22	9.8
		1951	4,567	661,806	666,515	6,687	22,855	63.2	1,575,140	690,753	166	61	92	28.8
	St. Louis Southw. Lines	1952	1,562	334,870	334,928	4,582	14,284	69.5	891,767	398,632	58	14	9	11.1
		1951	1,562	332,366	334,217	4,526	14,139	72.1	876,637	391,869	76	17	19	17.0
	Texas & New Orleans	1952	4,279	755,869	757,125	20,813	27,868	65.1	1,940,154	850,798	216	..	27	11.1
		1951	4,290	715,520	715,578	28,561	26,621	66.0	1,844,260	818,352	222	..	51	18.7

For the Month of December 1952 Compared with December 1951

	Region, Road and Year		Freight cars on line: Home	Foreign	Total	Per Cent B.O.	G.t.m.per train-hr. excl.locos. and tenders	G.t.m. per train-mi. excl.locos. and tenders	Net ton-mi. per train-mile	Net ton-mi. per l'd car-mile	Net ton-mi. per car-day	Car miles per car-day	Net daily ton-mi. per road-mi.	Train-miles per train-hour	Miles per loco. per day
New Eng. Region	Boston & Maine	1952	1,675	7,693	9,368	2.6	39,900	2,364	934	25.6	829	49.4	4,782	16.9	101.8
		1951	1,268	8,477	9,745	2.8	36,960	2,286	979	27.3	859	45.1	4,924	16.2	97.6
	N. Y., N. H. & Hfd	1952	1,959	13,061	15,020	2.2	36,108	2,340	1,018	27.3	635	33.3	5,736	15.4	120.8
		1951	1,366	12,582	13,948	3.8	34,978	2,323	1,024	28.3	654	33.6	5,403	15.1	116.7
Great Lakes Region	Delaware & Hudson	1952	6,884	4,436	11,320	3.9	63,422	3,213	1,627	35.7	1,031	43.9	13,907	19.8	70.3
		1951	3,553	5,585	9,138	7.5	57,371	3,030	1,650	38.3	1,408	51.4	16,276	19.1	66.6
	Del., Lack. & Western	1952	6,864	9,052	15,916	4.2	51,075	2,959	1,317	29.6	751	37.8	12,111	17.5	142.5
		1951	4,909	10,922	15,831	5.3	45,458	2,940	1,354	30.6	755	35.4	12,152	15.7	124.9
	Erie	1952	10,748	17,176	27,924	3.6	63,000	3,480	1,391	25.3	927	55.8	11,432	18.3	122.3
		1951	6,590	20,325	26,915	4.5	58,525	3,470	1,457	27.3	1,011	56.1	12,353	17.0	114.9
	Grand Trunk Western	1952	3,878	8,325	12,203	4.2	48,035	2,308	976	31.0	676	36.2	8,917	20.9	126.5
		1951	3,401	9,521	12,922	4.1	44,489	2,214	964	30.1	636	33.2	8,340	20.3	130.4
	Lehigh Valley	1952	3,488	9,518	13,006	4.6	68,381	3,240	1,442	30.3	773	39.5	8,567	21.3	230.4
		1951	1,971	12,915	14,886	7.2	62,554	3,186	1,469	29.6	752	36.6	9,428	19.8	192.5
	New York Central	1952	61,276	93,287	154,563	8.3	47,109	2,785	1,196	31.7	640	34.8	9,696	17.2	98.5
		1951	54,995	108,772	163,767	6.5	41,219	2,630	1,202	33.0	661	32.2	10,106	16.0	84.1
	New York, Chic. & St. L	1952	9,008	14,998	24,006	5.2	48,208	2,682	1,109	30.5	1,130	61.2	12,824	18.2	117.4
		1951	5,946	19,425	25,371	5.4	45,093	2,604	1,160	31.6	1,128	55.3	13,554	17.6	111.2
	Pitts. & Lake Erie	1952	3,118	11,419	14,537	5.4	53,466	3,679	2,228	51.4	396	11.7	25,575	14.6	59.1
		1951	2,930	8,442	11,372	10.3	47,447	3,584	2,152	50.4	506	15.9	25,830	13.4	59.8
	Wabash	1952	8,537	9,731	18,268	8.3	63,451	2,733	1,090	25.8	934	54.7	7,394	23.3	103.4
		1951	8,038	12,970	21,008	4.8	55,764	2,652	1,161	28.1	877	44.6	7,678	21.2	102.9
Central Eastern Region	Baltimore & Ohio	1952	55,691	40,516	96,207	7.8	42,648	2,962	1,412	35.6	746	33.8	11,888	14.6	91.4
		1951	44,409	52,295	96,704	5.0	38,705	2,888	1,427	37.2	794	34.6	12,712	13.6	87.1
	Central of New Jersey	1952	788	6,971	7,759	4.9	35,994	2,870	1,481	38.5	369	14.7	7,740	13.2	106.3
		1951	393	9,485	9,878	3.4	36,469	2,802	1,484	39.6	336	12.8	8,153	13.6	83.1
	Central of Pennsylvania	1952	3,073	4,269	7,342	10.6	42,205	3,215	1,674	39.9	495	19.5	14,861	13.9	67.6
		1951	1,595	3,340	4,935	21.9	40,337	3,082	1,688	40.5	685	24.4	16,160	14.1	80.5
	Chicago & Eastern Ill	1952	3,143	3,535	6,678	4.4	47,017	2,803	1,348	33.8	912	42.1	6,636	16.9	162.8
		1951	1,499	3,738	5,237	7.0	41,654	2,460	1,225	33.8	974	42.1	5,829	17.0	156.9
	Elgin, Joliet & Eastern	1952	7,493	18,165	25,658	3.2	18,530	2,722	1,452	43.0	183	6.8	18,278	7.1	102.2
		1951	6,105	16,067	22,172	3.5	16,555	2,881	1,594	43.9	220	7.5	19,665	5.9	103.4
	Pennsylvania System	1952	105,895	93,872	199,767	9.3	47,839	2,894	1,313	33.7	631	31.1	12,837	16.9	87.6
		1951	94,298	123,634	217,932	8.5	44,458	2,931	1,400	34.6	610	27.8	13,328	15.6	81.3
	Reading	1952	18,879	17,455	36,334	5.6	40,607	2,997	1,572	43.0	535	20.4	14,255	13.6	74.9
		1951	11,687	24,317	36,004	3.5	37,706	2,880	1,596	44.3	594	20.5	15,559	13.1	66.8
	Western Maryland	1952	6,811	2,733	9,544	4.7	41,218	2,907	1,622	47.1	1,066	36.8	12,123	14.5	62.3
		1951	5,371	4,004	9,375	2.3	40,024	2,974	1,660	46.8	1,182	40.9	12,259	13.7	59.2
Pocahontas Region	Chesapeake & Ohio	1952	54,821	20,317	75,138	2.6	68,249	3,776	2,043	47.4	1,168	44.9	16,823	18.2	74.0
		1951	50,172	21,693	71,865	5.3	63,301	3,803	2,116	49.7	1,371	49.7	19,750	16.8	78.2
	Norfolk & Western	1952	38,468	5,954	44,422	2.0	67,696	4,035	2,150	48.3	1,127	41.0	21,764	17.1	96.2
		1951	34,379	7,491	41,870	1.8	65,183	4,104	2,244	49.8	1,337	46.6	26,166	16.3	112.1
Southern Region	Atlantic Coast Line	1952	17,070	20,355	37,425	2.6	37,354	2,259	983	32.6	742	40.7	5,024	16.6	99.5
		1951	14,240	18,924	33,164	2.8	35,761	2,208	989	33.6	817	42.4	4,968	16.3	66.8
	Central of Georgia	1952	3,365	5,140	8,505	4.8	43,595	2,493	1,129	31.6	873	43.1	4,156	17.6	79.0
		1951	2,930	5,008	7,938	6.1	36,952	2,063	950	31.6	906	43.2	4,196	18.0	83.2
	Gulf, Mobile & Ohio	1952	5 154	9,178	14,332	3.4	68,632	3,431	1,592	31.4	1,145	53.8	6,148	20.1	126.4
		1951	3,816	10,887	14,703	3.8	62,188	3,208	1,521	31.1	1,058	48.5	5,588	19.4	129.6
	Illinois Central	1952	28,595	26,506	55,101	1.8	41,350	2,447	1,102	34.0	1,094	54.4	8,647	17.2	90.1
		1951	25,405	30,579	55,984	1.8	40,121	2,437	1,131	34.4	1,029	48.4	8,971	16.8	89.1
	Louisville & Nashville	1952	39,230	12,656	51,886	3.2	41,602	2,475	1,200	36.0	789	36.2	8,128	16.8	110.6
		1951	29,100	13,657	42,757	7.6	37,757	2,427	1,214	37.6	995	42.8	8,976	15.6	105.3
	Nash., Chatt. & St. Louis	1952	2,357	3,936	6,293	3.6	41,981	2,018	923	30.3	975	47.5	5,795	20.8	140.6
		1951	1,404	4,231	5,635	4.7	42,457	2,073	980	31.0	1,141	52.3	6,524	20.5	139.8
	Seaboard Air Line	1952	12,558	15,890	28,448	2.1	49,582	2,740	1,192	31.6	927	48.5	6,190	18.4	112.4
		1951	11,737	15,784	27,521	1.8	44,216	2,507	1,110	31.6	959	48.1	6,260	18.0	101.7
	Southern	1952	13,535	29,429	42,964	3.3	41,263	2,451	1,093	37.4	837	43.2	5,781	17.0	125.4
		1951	13,264	29,758	43,022	4.5	39,157	2,324	1,050	30.0	903	45.5	6,218	17.0	81.2
Northwestern Region	Chicago & North Western	1952	20,527	26,977	47,504	4.3	47,121	2,796	1,241	31.0	603	30.5	3,704	17.4	67.2
		1951	18,457	31,744	50,201	4.4	40,418	2,566	1,211	32.5	601	27.3	3,739	16.6	66.4
	Chicago Great Western	1952	1,316	6,633	7,949	2.3	69,555	3,884	1,691	28.9	999	51.8	5,418	17.9	142.5
		1951	1,942	5,525	7,467	2.7	64,999	3,702	1,786	41.9	1,055	45.8	5,555	17.6	153.4
	Chic., Milw., St. P. & Pac	1952	34,587	32,339	66,926	3.5	48,656	2,724	1,199	30.4	644	33.9	3,969	17.9	79.8
		1951	30,314	36,924	67,238	3.9	42,440	2,562	1,177	31.2	640	31.1	3,982	16.7	79.1
	Chic., St. P., Minn. & Omaha	1952	1,159	7,352	8,511	2.7	33,741	2,197	1,037	33.2	683	30.4	3,800	16.0	77.4
		1951	1,299	8,315	9,614	3.9	30,379	2,005	946	34.0	656	29.6	3,837	16.1	76.3
	Duluth, Missabe & Iron Range	1952	12,594	611	13,205	3.2	31,661	2,221	1,168	43.5	112	4.5	2,715	15.3	24.0
		1951	12,161	1,076	13,237	3.4	37,647	2,385	1,279	47.7	163	6.1	3,985	16.7	31.4
	Great Northern	1952	23,387	20,639	44,026	3.2	44,470	2,453	1,108	31.3	882	42.4	4,685	18.3	77.9
		1951	22,226	19,769	41,995	3.4	40,549	2,408	1,135	32.8	851	37.9	4,530	17.0	72.6
	Minneap., St. P. & S. St. M	1952	6,599	6,697	13,296	6.4	39,772	1,950	889	29.7	821	41.7	2,703	20.5	112.0
		1951	5,926	7,873	13,799	6.6	39,232	2,032	966	32.5	796	37.5	2,906	19.4	112.5
	Northern Pacific	1952	20,180	17,111	37,291	4.1	47,222	2,619	1,189	32.4	876	42.0	4,847	18.2	79.5
		1951	17,929	16,774	34,703	5.6	42,429	2,540	1,194	33.0	889	38.9	4,661	16.9	75.2
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.)	1952	51,798	34,366	86,164	3.6	63,132	2,803	1,033	25.2	1,055	66.9	6,856	22.6	124.9
		1951	49,337	33,301	82,638	4.7	58,281	2,755	1,092	27.2	1,087	61.9	6,966	21.3	118.8
	Chic., Burl. & Quincy	1952	17,437	26,525	43,962	3.1	55,308	2,733	1,181	29.6	1,038	55.6	5,290	20.3	90.5
		1951	16,968	24,709	41,677	3.5	52,511	2,781	1,282	32.0	1,144	54.6	5,556	19.0	81.3
	Chic., Rock I. & Pac.	1952	13,940	21,407	35,347	3.5	50,022	2,633	1,078	29.8	982	54.8	4,442	19.1	142.4
		1951	11,170	25,803	36,973	4.0	47,094	2,572	1,107	31.3	995	50.7	4,589	18.4	121.5
	Denver & R. G. Wn.	1952	7,473	7,023	14,496	3.7	52,376	2,972	1,430	34.5	1,126	47.9	7,124	17.7	97.8
		1951	7,811	5,893	13,704	3.3	46,004	2,905	1,413	33.6	1,117	47.2	6,495	16.0	88.4
	Southern Pacific	1952	30,516	43,218	73,734	2.0	49,211	2,807	1,182	28.3	1,046	55.5	9,725	17.8	95.5
		1951	27,352	44,709	72,061	2.7	47,513	2,812	1,173	27.1	977	52.5	8,909	17.1	94.8
	Union Pacific	1952	31,661	33,282	64,943	2.5	61,655	2,623	1,131	29.6	1,500	78.4	10,149	23.9	128.0
		1951	28,163	32,064	60,227	2.0	58,500	2,739	1,224	30.5	1,579	78.3	10,194	21.7	119.7
	Western Pacific	1952	2,519	3,695	6,214	4.1	73,124	3,075	1,421	31.6	1,720	81.1	9,340	23.9	158.6
		1951	2,725	5,403	8,128	2.6	70,003	3,096	1,416	29.7	1,468	70.2	8,996	22.8	122.0
Southwestern Region	International-Gt. Northern*	1952	1,058	7,373	8,431	2.3	53,838	2,672	1,202	33.9	771	36.3	6,071	20.3	92.2
		1951	828	6,767	7,595	2.1	51,226	2,516	1,162	33.5	924	43.1	6,327	20.5	101.5
	Kansas City Southern	1952	1,239	6,341	7,580	3.2	72,709	3,661	1,725	33.0	1,209	54.4	10,696	20.0	177.9
		1951	1,333	5,961	7,294	4.3	68,152	3,526	1,651	33.0	1,236	56.3	10,682	19.5	150.0
	Mo.-Kans.-Texas Lines	1952	4,498	6,193	10,691	4.8	50,965	2,444	1,025	27.8	1,223	70.5	4,090	20.9	135.8
		1951	3,464	6,888	10,352	6.1	49,163	2,393	1,019	28.0	1,272	69.1	4,126	20.6	117.2
	Missouri Pacific*	1952	21,498	13,530	35,028	2.7	55,915	2,554	1,105	31.0	1,280	67.1	6,496	22.0	116.7
		1951	17,697	14,479	32,176	2.5	53,477	2,549	1,125	31.2	1,404	70.9	6,726	21.2	115.5
	Texas & Pacific	1952	3,556	7,245	10,801	3.1	65,296	2,899	1,068	27.5	1,167	72.4	6,903	22.5	168.7
		1951	2,735	6,625	9,360	4.9	58,560	2,772	1,077	27.7	1,241	71.9	6,749	21.1	98.9
	St. Louis-San Francisco	1952	12,114	12,861	24,975	3.0	45,726	2,534	1,105	30.8	983	51.9	5,220	18.1	107.3
		1951	8,452	12,814	21,266	3.1	45,213	2,385	1,046	30.2	1,014	53.1	4,879	19.0	72.2
	St. Louis Southw. Lines	1952	2,309	4,888	7,197	1.7	56,584	2,665	1,191	27.9	1,837	94.8	8,232	21.2	138.7
		1951	2,018	4,263	6,281	2.0	52,784	2,640	1,180	27.7	1,914	95.7	8,093	20.0	105.1
	Texas & New Orleans	1952	5,676	15,888	21,564	1.2	49,656	2,584	1,133	30.5	1,244	62.6	6,414	19.3	111.2
		1951	5,405	16,162	21,567	3.6	46,450	2,595	1,152	30.7	1,214	59.8	6,153	18.0	93.1

*Report of trustee or trustees.
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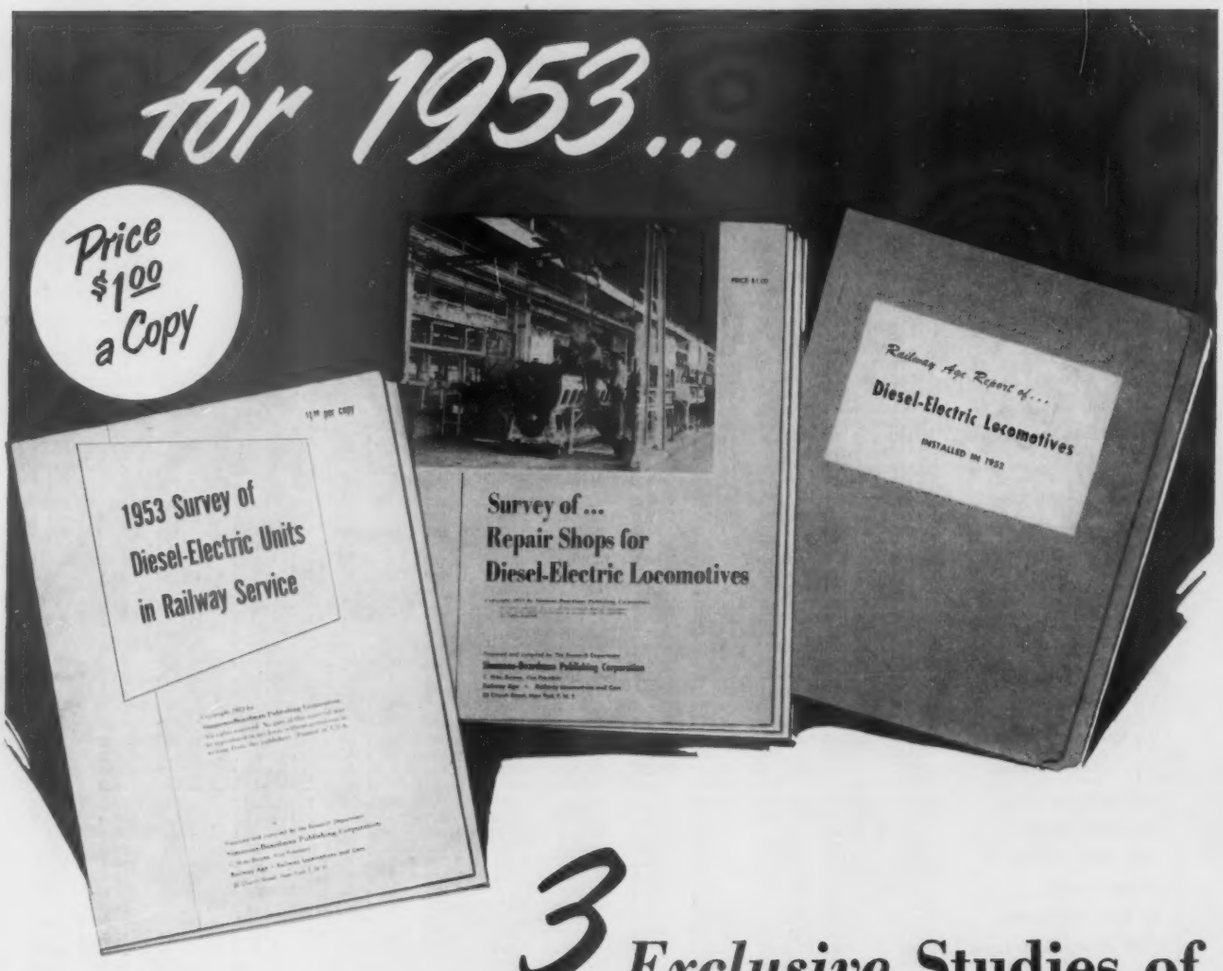
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